

NEW SOUTH WALES,

REPORT

OF THE

New South Wales Board of Trade

ON

WHITE LEAD

AS USED IN THE

PAINTING INDUSTRY:

ITS DANGERS AND THEIR PREVENTION

WITH APPENDICES, EVIDENCE, ADDRESSES,
AND EXHIBITS.



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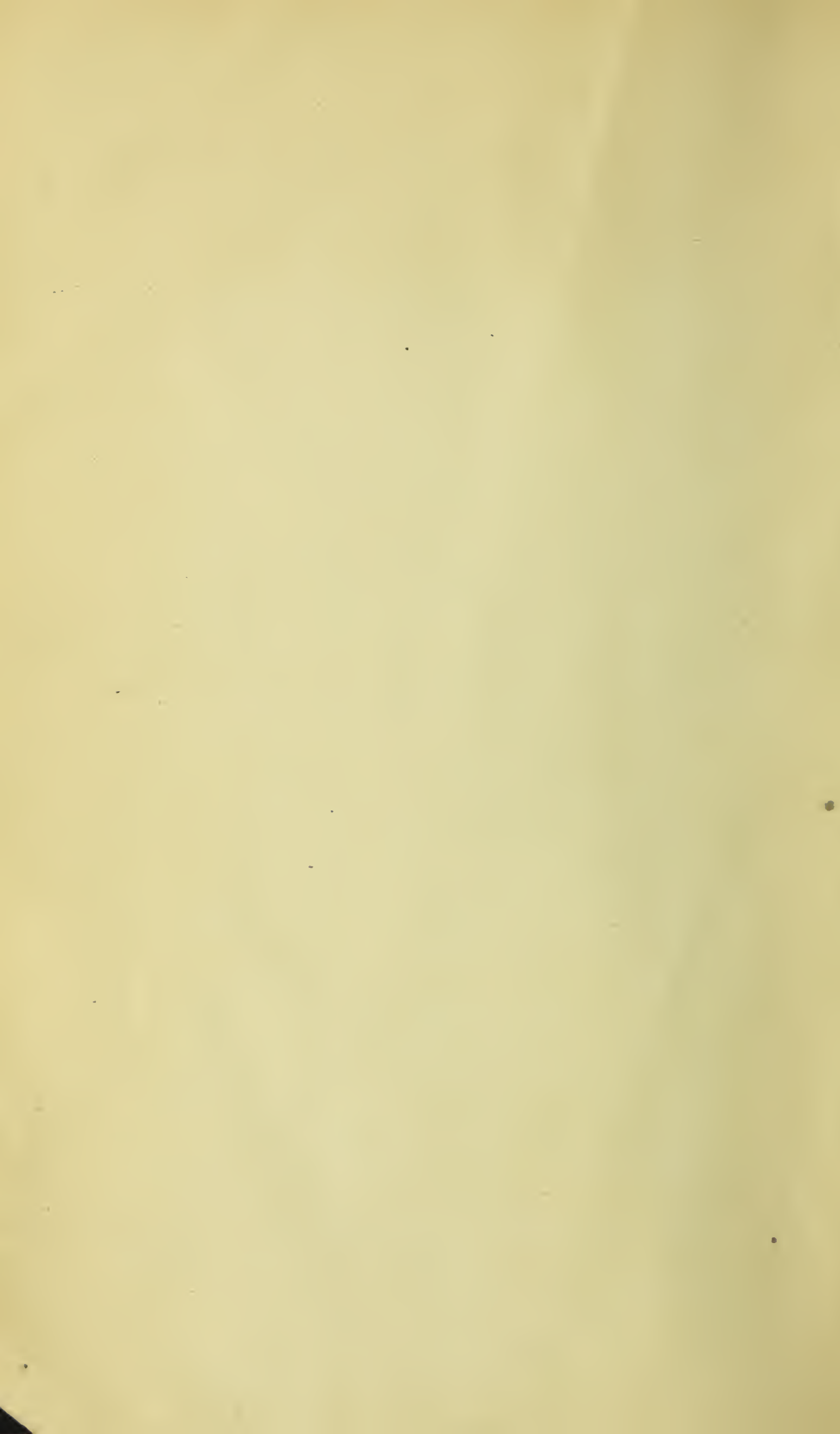
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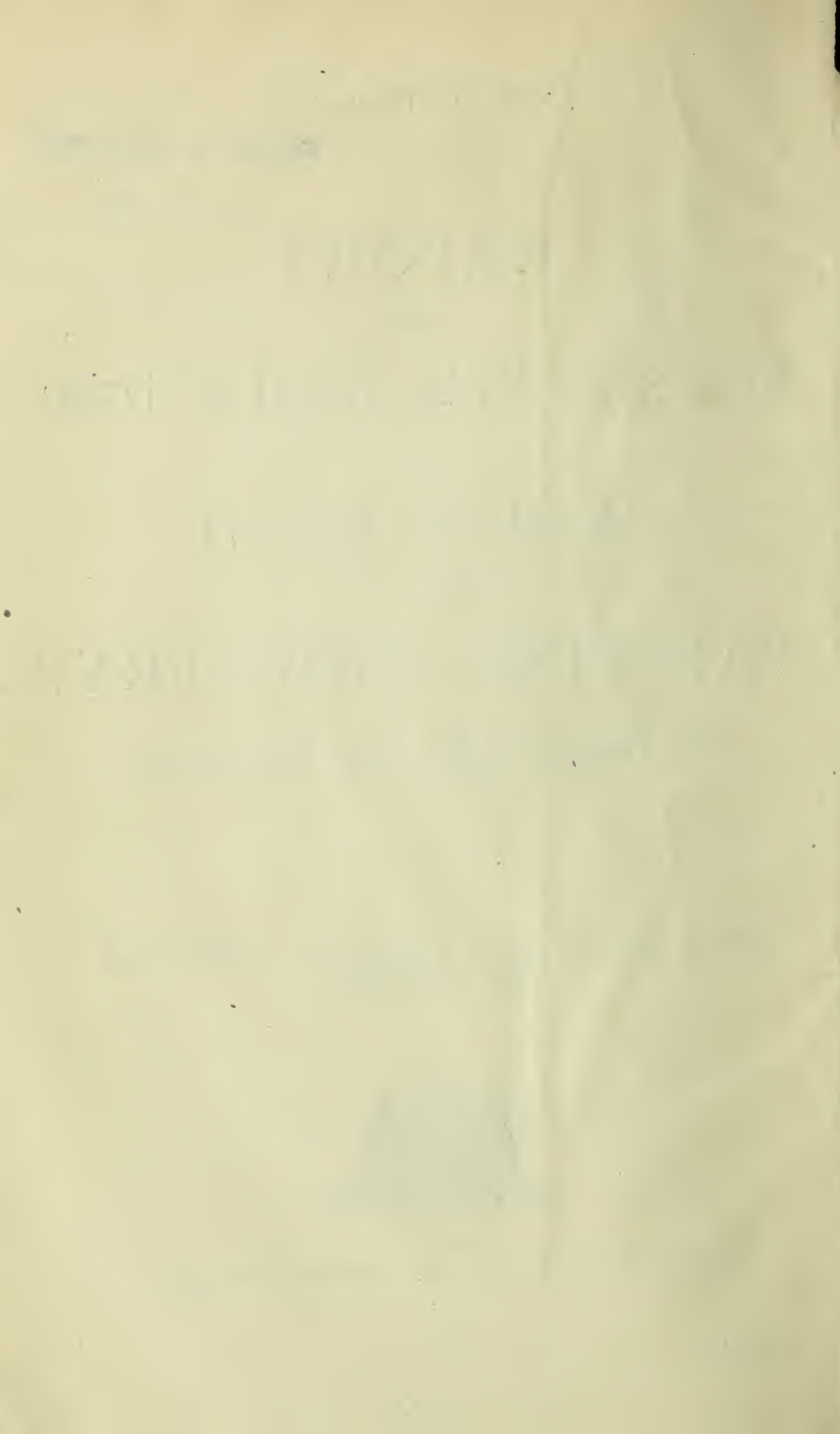
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SYDNEY:

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REPORT.

To His Excellency Sir WALTER EDWARD DAVIDSON, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Governor of the State of New South Wales and its dependencies, in the Commonwealth of Australia.

MAY IT PLEASE YOUR EXCELLENCY,—

The New South Wales Board of Trade has the honour to submit the following report dealing with certain matters referred to it by the Minister of the Crown administering the Industrial Arbitration Act, 1912-20, on the 10th June, 1921. The terms of the Letter of Reference were as follows:—

Department of Labour and Industry,
Sydney, 10th June, 1921.

In exercise of the powers conferred upon me by Section 82 (n) of the Industrial Arbitration Act, 1912, as amended, I hereby refer to the New South Wales Board of Trade for consideration and report the following question:

Is whitelead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?

In connection with this Reference, it is desired that the Board of Trade shall investigate and report upon all matters incidental thereto, with a view to supplying in its report sufficient information to enable the Government to determine the answers to be furnished to a Questionnaire (including a request for statistical information) which has been prepared by the International Labour Office for the purpose of securing information for consideration at the Third Session of the International Labour Conference to be held at Geneva in October next, relative to the question of the prohibition of the use of whitelead in painting.

I make available for the Board's information in such connection copy of a pamphlet issued by the International Labour Conference upon the question of the prohibition of white-lead in painting, containing the Questionnaire referred to, and also forward a report of a Departmental Committee, appointed by the Secretary of State for the Home Department, to investigate the danger attendant on the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages, which was presented to the English Parliament last year.

G. CANN,

Minister for Labour and Industry.

The Secretary, New South Wales Board of Trade, Sydney.

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At a meeting of the members of the Board, held on the 16th day of June, 1921, the Deputy-President of the Board and Messrs. W. T. Willington, Thomas Routley, and Arthur Cooper, Commissioners of the Board, were entrusted with the conduct of a public inquiry upon the questions of the Reference.

GEO. S. BEEBY, President.

J. B. HOLME, Deputy-President.

W. T. WILLINGTON,	}	Commissioners.
THOMAS ROUTLEY,		
ARTHUR COOPER,		

University Chambers,
 78 Elizabeth-street, Sydney,
 7th day of October, 1921.

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White-lead as Used in the Painting Industry: Its Dangers and Their Prevention.

CHAPTER I.

INTRODUCTORY.

THE New South Wales Board of Trade opened a public inquiry into the matters referred to it by the Minister, at the Board Rooms, University Chambers, 78 Elizabeth-street, Sydney, on the 23rd June, 1921. It concluded that inquiry with the receipt of addresses in writing from representatives of the parties appearing before it on the 29th August and 1st September following. In the course of its inquiry nineteen public sittings of the Board were held at the place mentioned viz., on the 23rd, 28th, and 29th June; 1st, 4th, 5th, 8th, 12th, 13th, 14th, 15th, 18th, 20th, 25th, 26th, 28th, and 29th July; and 2nd and 3rd August, 1921.

At the public sittings fifty-two witnesses were examined by the Board. Of these witnesses, thirty-three were called by the Board, and the remainder by parties appearing before it. Mr. H. Manning, of counsel, appeared to represent the Broken Hill Associated Smelters', Limited, Port Pirie, South Australia, the British-Australian Lead Manufacturers' Proprietary, Limited, the Master Painters and Decorators' Association of New South Wales, the Broken Hill Associated Mines, the Paint Manufacturers' Association, and Lewis Berger and Sons (Australia), Limited. Eleven witnesses were called in these interests. Mr. M. J. Connington, as agent, appeared to represent the interests of the Operative Painters and Decorators' Union of Australia, an industrial union of employees in the painting industry, and he called eight witnesses. Of the nineteen witnesses thus giving evidence on behalf of interests concerned one represented the lead-mining and smelting interests of Broken Hill and Port Pirie, three represented paint-makers and the lead-corroding interests in Australia, one represented a zinc-white manufacturer, four were master painters, seven were operative painters and representatives of their unions, and three were scientific medical witnesses or legally qualified practitioners with a special experience of lead-poisoning.

On the 18th day of July, 1921, the Board visited the lead-corroding works of Messrs. Lewis Berger and Sons (Australia), Limited, at Rhodes, Sydney, and the lead-corroding works of the British-Australian Lead Manufacturers' Proprietary Limited at Cabarita, Sydney, for the purpose of viewing the processes of manufacture of carbonate of lead; and on the 20th day of July the Board visited the Railway Workshops at Eveleigh in order that it might see the physical surroundings of the carriage and other shop painters employed by the Railway Commissioners of the State. The Board, in making this second inspection, desired also to assist itself in determining to what extent comparisons might fairly be made between the health conditions of the wood-working and painting employees in those works and

Inquiries were addressed, through the Board's officers, to the Inspector-General of Mental Hospitals upon the subject of the incidence of insanity in the case of operative painters, and to the Commonwealth Naval Establishments and the State Railway Department upon the subject of the relative morbidity of employees in their painting and other workshops. The terms of each series of questions and all the written replies received thereto are set out in Appendix I to this report. The replies in two cases were received after the conclusion of the public sittings of the Board, but were made available to the representatives of the interests appearing before the Board.

Some other inquiries made by direction of the Board in the forms of letters, and the replies received from the persons addressed, are set out in Appendix II to this report.

The Board has informed its mind generally by reference to the reports of the British Departmental Committees appointed to investigate the danger attendant on the use of paints containing lead in the painting of buildings, and on the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages,* and to other literature published within the State and abroad upon the matters under investigation. In this connection the Board has again to acknowledge very valuable assistance received by it from the Research Department of the Public Library of the State.

* Reports of Departmental Committees appointed to Investigate the Danger Attendant on the Use of Paints, Lead Compounds, &c. Cd. 7882 (Cmd. 630, 631, 632).

CHAPTER II.

THE MATTERS COLLATERAL TO THE INQUIRY.

The Minister's Reference opens with the question: "Is white-lead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?" The Reference then proceeds to direct the Board to investigate and report upon all matters incidental to that question with a view to the Board supplying the Government with such information as may enable it to determine what answers should be furnished to questions to be found in a publication of the Geneva International Labour Office, entitled, "International Labour Conference, Third Session, Geneva, April, 1921: Prohibition of the Use of White-lead in Painting: Item III (b) of the Agenda." The terms of this Questionnaire and a note which is attached to it are now referred to. The Questionnaire reads:—

- "(1) In view of the fact that it is now technically possible to replace white-lead in painting by efficient substitutes, are you of opinion that a draft convention prohibiting the use of white-lead in painting should be submitted to the Conference?
- (2) If so, do you consider that a period should be allowed before the prohibition would come into force? Please indicate what period you think necessary, and why.
- (3) What measures of supervision and control in the application of this prohibition do you suggest?
- (4) If your Government does not approve of a draft convention prohibiting the use of white-lead in painting, what measures do you propose in order to meet the dangers arising from its manufacture and use?"

The note reads:—

"N.B.—In order to facilitate the task of preparation for the Conference of 1921, please state:—

What legislative or other measures intended to diminish or remove the danger of lead-poisoning in house-painting are at present in force in your country?

Please supply, in addition, all the available statistical information, annual, if possible, since 1910, upon the following points:—

A. (1) The number of house-painters;

(2) The number of cases of plumbism amongst house-painters, classified, if possible, according to the form of illness: colic, paralysis, nephritis.

B. (1) The number of persons employed in lead and zinc industrial undertakings;

(2) The output of lead and of zinc."

These figures should be shown in tabular form, as follows:—

Industries.	Number of establishments.	Number of workers employed.				Quantity produced (in tons).	Quantity imported (in tons).	Quantity exported (in tons).
		Children.		Women.	Men.			
		Under 15 years.	Between 15 and 18 years.					
LEAD.								
(a) Treatment of lead ores								
(b) Treatment of lead in metal form.								
(c) Manufacture of white-lead...								
(d) Manufacture of varnish, &c., on a lead basis.								
ZINC.								
(a) Treatment of zinc ores								
(b) Treatment of zinc in metal form.								
(c) Manufacture of zinc white...								
(d) Manufacture of varnish, &c., on a zinc basis.								
(e) Manufacture of lithopones...								
(f) Manufacture of sulphate of zinc.								
(g) Manufacture of other substitutes for white-lead.								

The outstanding issue of the inquiry was, of course, the question to what extent white-lead, as used in the painting industry, was injurious to painters or other workmen engaged in such industry. The answer to this question was, as it appeared to the Board, almost wholly begged by the terms of the Questionnaire contained in the pamphlet of the International Labour Office which the Minister attached to his Reference. It was obvious that if white-lead was not found to be so injurious to painters and others as to make the prohibition or regulation of its use advisable in this State, the fact of it being technically possible to replace white-lead in painting by efficient substitutes would not justify the prohibition of its use in painting at the present or at any future time. In such circumstances the last of the questions propounded by the International Labour Office would, alone, be of importance. But the form of this question is distinctly harassing. The question certainly implies that specific dangers arising from the manufacture and use of white-lead might be assumed to exist under the conditions obtaining in this State, and that such measures as should be proposed to prevent or mitigate the effect of those dangers must be of international significance. Moreover, in the final paragraph of this Questionnaire, there is latent the whole question of the dangers arising from the manufacture

of hydrated carbonate of lead, an issue of sufficient importance to have figured independently but certainly not as a marginal consideration in an inquiry having the operative painter principally in view.

The form of this Questionnaire suggests a close examination of the pamphlet as a whole. Its publisher apparently is the International Labour Office at Geneva, and its date of publication the present year. The authenticity of the pamphlet cannot, then, be doubted. Its matter has reference to "Item III (b) of the Agenda of the International Labour Conference, Third Session, Geneva, April, 1921," but from the terms of the Minister's Reference it seems that there has been an adjournment of the Third Session from April last to October next. The subject for discussion is the "prohibition of the use of white-lead in painting": no less. The question of how to "meet the dangers arising from the manufacture and use of white-lead" is to be looked at from the point of view of the prohibition of the use of white-lead in painting. The question is, therefore, much wider than it appears at first sight to be. This condition of things is not encouraging. The case, one reflects, is not fairly put if it is to be considered without prejudice and with a view to the establishment of the truth and its real significance.

The body of the pamphlet gives but little reassurance. The method of the International Labour Office is described in a prefatory note. The method of seeking "the most complete information" on the domestic industrial arrangements and the theory of the legislation of the various countries to confer at Geneva is denounced; and an alternative, whereby the Bureau of the International Labour Office interprets law and public opinion in the case of each and all of the nations subscribing to its establishment, and promulgates appropriate projects of international comity upon industrial and economic affairs, is not only commended but inaugurated and announced. The Questionnaire under review is the first evidence of this new method. It relates "exclusively to the possibility of elaborating Draft Conventions or Recommendations on the questions at issue, and to the provisions which it may or may not seem necessary or possible to include in them." Its "exclusive" character is, indeed, manifest. The bureau proposes to exclude not only facts and opinions which are appropriate to any plane of sentiment and ratiocination different from that adopted by itself, but also the replies which from the great distances of the world may fail to reach it a month or two before the opening of its conferences. An apt illustration of the possibilities of the new method is then supplied. A delegate to the Washington Conference of November, 1919, having irregularly moved the Commission on Unhealthy Processes at that Conference to give its attention to the question of the use of white-lead in house-painting, the Commission expressed the opinion that the subject should be referred to the International Labour Office to be placed on the agenda at the next Conference; and "in order to give effect to this finding the Governing Body of the International Labour Office placed the question of the prohibition of the use of white-lead in the painting industry on the agenda for the Conference which is to be held in April, 1921."*

* "Prohibition of the Use of White-lead in Painting," Geneva International Labour Office, 1921, p. 6.

The bureau then proceeds to state a case for the prohibition of the use of white-lead in a manner which, to tell only half the truth, evidences but little sense of the high administrative trust with which it must be regarded as charged.*

According to the approved method of the International Labour Office, the pamphlet should represent a study of the problem of the dangers of white-lead, and the means to be taken for their prevention, and of the existing legislation and available information on the subject, which may be accepted by Governments concerned in the conferences as the basis for their replies to the Questionnaire. As it is intended that Governments shall be guided by what is thus put before them, it might be expected that the pamphlet would amount to an exact and systematic statement of what is contained in the organised body of knowledge upon the subject. In this respect it is wholly disappointing. It has, in fact, harassed rather than helped the Board in its inquiry and deliberations.

In supplying the Minister with the basis and reasons for its answer to the question of his Letter of Reference, the Board has, in effect, given answers to the numbered paragraphs of the Geneva Questionnaire. The note to that Questionnaire may now be replied to.

There are no legislative or other measures at present in force in this State which are intended to diminish or remove the danger of lead-poisoning in house-painting.

The number of house-painters, paperhangers, glaziers, and signwriters in the State as at the 1911 census was 5,638. The figures collected in the course of the census of 1921 are not yet available.

The number of cases of plumbism amongst house-painters since 1910 cannot be given, except in so far as those cases were fatal. The mortality statistics are dealt with in Chapter IV of this report.

The numbers of persons employed in silver-lead and zinc mines since 1910 were as follows :—

Year.	Silver-Lead and Zinc.
1911	8,495
1912	9,062
1913	9,357
1914	8,242
1915	5,564
1916	6,461
1917	7,619
1918	7,585
1919	6,556
1920	1,931

* See Article 396 of the Treaty of Peace. "The functions of the International Labour Office shall include the collection and distribution of information on all subjects relating to the international adjustment of conditions of industrial life and labour, and particularly the examination of subjects which it is proposed to bring before the Conference with a view to the conclusion of international conventions, and the conduct of such special investigations as may be ordered by the Conference."

The numbers of persons employed in lead-corroding works and in the manufacture of zinc since 1910 were:—

Year	Employed in Lead Corroding Works.	Employed in Manufacture of Zinc.
1911 .....	.....	.....
1912 .....	.....	.....
1913 .....	.....	.....
1914 .....	.....	.....
1915 .....	.....	.....
1916 .....	.....	.....
1917 .....	.....	16
1918	60	23
1919	72	30
1920	81	28
1921	102	32

The output of lead and zinc since 1910 was:—

Year.	Metal Produced.		Concentrates Exported.	
	Lead.	Zinc.	Lead.	Zinc.
	Tons.	Tons.	Tons.	Tons.
1911	94,966	1,703	111,795	188,669
1912	101,811	2,545	97,736	194,214
1913	106,432	4,121	117,903	184,149
1914	99,925	5,014	88,173	146,400
1915	101,090	5,308	9,819	71,049
1916	128,438	5,277	16,428	69,141
1917	138,006	4,694	6,181	43,912
1918	155,306	5,622	3,178	21,926
1919	80,175	7,119	2,425	18,146
1920	1,749	10,565	3,025	21,742

CHAPTER III.

THE CHEMICAL AND PHYSIOLOGICAL DATA.

WHITE-LEAD, as ordinarily so known, is a basic carbonate of lead. A sublimed white-lead, or basic lead sulphate, is another form of lead, which furnishes a white paint material, but its use being so much less extensive than that of the basic carbonate, it is relatively unimportant for immediate purposes. The basic carbonate of lead is much more soluble, and therefore much more deleterious, from the physiological standpoint, than the basic sulphate. The poisonous nature of any lead compound, from an industrial point of view, is proportional to (1) the size of the ultimate particles of the substance manufactured, and therefore the ease with which such particles are capable of dissemination in the air; and (2) the solubility of the particles in the normal fluids of the body, such as the saliva, pharyngeal and tracheal and bronchial mucus, &c., and the fluids of the stomach and intestine.* Tests of the solubility of basic lead sulphate and basic lead carbonate in human gastric juice, and of the relative toxicity of lead sulphate and lead carbonate when fed to animals, have been made by various investigators. The English Departmental Committee already referred to found that basic lead sulphate was far from being a non-poisonous paint. "It is," the Committee said, "less dangerous in use than the hydrated carbonate of lead known as white-lead to the extent indicated by its smaller solubility in dilute hydrochloric acid; this solubility has been shown to be not more than one-quarter that of white-lead; and it follows, therefore, that a restriction of the use of lead in paints to not more than 5 per cent. of soluble lead would permit of the introduction of as much as 20 per cent. of a basic lead sulphate into a leadless paint."† The relative toxic effects of the two compounds need not be stressed. The lead carbonate is much more toxic than the lead sulphate, but both salts produce acute lead-poisoning when given in quantities of 0.1 g. per kilo body weight per day, and none of the precautions usually advocated for the protection of workers in lead should be neglected by those handling lead sulphate.‡ The work of the Broken Hill Technical Commission of Inquiry, as was indicated in the evidence of Professor Chapman and Dr. Smith, throws additional light upon the subject of the toxicity of the lead sulphide ores of this State.

The channels through which lead or its compounds may gain entrance to the body are the respiratory system, the stomach and the skin. There is no doubt whatever that the chief cause of lead-poisoning is dust or fume suspended in the air, and the dust inhaled is far more dangerous, and produces symptoms of poisoning far earlier than that ingested. The breathing

* "Lead-Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 7. Evidence of Dr. S. A. Smith, pp. 562-3.

† Reports of the Departmental Committees appointed to investigate the Danger Attendant on the Use of Paints, &c. (Cd. 7882), p. 102.

‡ "Hygiene of the Painters' Trade," Alice Hamilton, M.A., M.D., Bull. No. 120 of U.S. Bureau of Labour Statistics, 13/5/13, p. 32.

apparatus, rather than the digestive tract, is, therefore, in industrial life, by far the most important channel of absorption. Particles of lead present in the air in industrial processes are exceedingly small, and something under one micron* represents the average size of a particle of white-lead. In the case of painters there is no danger of the inhalation of lead fumes. The vapour pressure of lead at the temperature at which painters work is practically nil.†

Gastro-intestinal ingestion as a cause of lead-poisoning in ordinary industrial conditions is, although relatively less important, by no means negligible. Lead which gains access to the stomach is, however, very largely made relatively insoluble by the gastric processes, and is excreted from the bowel.‡

No fibrosis of the lung or any similar lesion occurs as the result of the inspiration of lead dust. The dust enters the spaces and actual tissue of the lining, and is in due course absorbed through it by the medium of the phagocyte cells. It is carried by the blood and deposited in various places in the body. Eventually it is excreted mainly by the bowel, but in some cases to a slight extent by the urine. Absorbed lead remains stored up in the body in minute quantities for long periods.§

Lead may be absorbed through the skin, but the skin as a channel of entrance is quite negligible from the industrial standpoint. There is very little danger of absorption through the skin, if any at all. White-lead will not go through the skin, or even through a cut.||

Lead, like a great number of poisonous substances, produces different effects in different persons. Medically it is recognised that a definite and distinct predisposition to lead-poisoning may be exhibited in certain cases; and there is a related theory of susceptibility and immunity. Normal persons who show small or a diminishing resistance to the toxic effects of industrial exposure to lead are classed as susceptibles; and normal persons who show great and increasing resistance are said to be tolerant of, or immune to, the poisonous effects of lead.¶ A comparatively small number of persons are highly susceptible to lead-poisoning, and develop, after short exposure, one of the easily recognisable and quite characteristic types of lead-poisoning. The great majority of persons, when first brought into contact with lead, show some effects. Many of these readily develop tolerance when exposed to recurrent lead-absorption, and many lose and re-establish a state of tolerance or immunity to the poison. Chemical investigations into the elimination of lead from the body show that when tolerance is established any absorbed lead is discharged through the fæces and not, as

* A micron is one-millionth part of a metre, or approximately one twenty-five thousandth part of an inch.

† "Lead-Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 8-12. Evidence of Dr. S. A. Smith, p. 563; and Evidence of Prof. Chapman, p. 591.

‡ "Lead-Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 12-24. Evidence of Dr. S. A. Smith, pp. 565, 588.

§ Evidence of Dr. S. A. Smith, p. 564; and Evidence of Professor Chapman, p. 596.

|| Report of Departmental Committee on the Use of Paint containing Lead in the Painting of Buildings (London) (Cmd. 632): Evidence of Dr. T. M. Legge, p. 4; and Evidence of Dr. S. A. Smith, p. 565.

¶ "Lead-Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 27-8.

has often been stated, through the kidneys.* Probably those individuals who are naturally tolerant, or develop a partial immunity, establish a kind of balance between the intake of the poison and its excretion by the bowels. This balance may persist, but it is ordinarily not stable. It may be disturbed by excessive exposure to, or a massive dose of, lead dust, by inter-current disease, or by any serious accident. The tolerant individual cannot afford to have the balance disturbed by accident or illness. Absorption of lead is, therefore, medically distinguished from poisoning by lead; and medical opinion favours the elimination of susceptibles from industries which bring them into contact with lead.†

Although lead-absorption may gradually drift into definite lead-poisoning, a large number of cases, particularly those in industrial processes, do not, and should not, progress beyond the early symptoms of lead-absorption. There may be generalised symptoms of lead-absorption, without any definite and disabling symptoms traceable and sufficiently pronounced to enable a diagnosis of lead-poisoning to be made.‡ Lead-poisoning and lead-absorption are not synonymous terms. The literature with regard to the potteries makes the statement that certifying surgeons are to observe this fact. Lead-absorption may be distinguished from lead-poisoning thus: absorption is ingestion or inhalation of quantities of lead, which are subminimal poisonous doses. They are sufficient to produce some change in the body, but that change is one that the body is able to deal with. The damage by stress to the body is slightly increased, but it is not increased beyond that amount that the body is able to deal with and repair. Lead-poisoning occurs where the dose is carried beyond such a point and the body is no longer able to deal with the quantity, and the whole of the quantity previously present in the body may then act as a toxic amount.§

Lead is peculiarly a cumulative poison. It, as such, gradually banks up within the tissues.|| There are, however, no reasons for supposing that the immunity to lead-poisoning depends on the fixation and storing up of the metal in a non-poisonous form in some special situation in the body. The particular situation in the body richest in lead in any given case of poisoning depends rather on the type of compound causing the poisoning and the channel of its admission to the body. The chemical investigation of the amount of lead present in the organs of persons dying from lead-poisoning should, if possible, always be made where there is any doubt as to the diagnosis. All compounds of lead are not poisonous in the same degree. The more easily soluble and more finely-divided compounds are the more poisonous.¶

* "Immunity and Industrial Diseases," Sir Kenneth Goadby, K.B.E. Lecture, 27/5/21, Royal Society of Arts, London.

+ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 28. Evidence of Dr. S. A. Smith, p. 567; Evidence of Professor Chapman, pp. 594, 595.

‡ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 184.

§ Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c. (Cmd. 632); Evidence of Sir Kenneth W. Goadby, D.P.H., &c. p. 467.

|| "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 28. Evidence of Dr. S. A. Smith, p. 567; Evidence of Professor Chapman, pp. 594, 595.

¶ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 105.

Again, subsidiary matters may also determine the susceptibility in a given individual, *e.g.*, age and sex, and certain diseases are definitely predisposing factors. The susceptibility of young persons is at least twice that of adults. Females are at least twice, and probably three times, as susceptible to lead-poisoning as are males. There are certain illnesses which predispose to lead-poisoning. Diseases which lower the general resistance of the body tissues to the influence of lead predispose to lead-poisoning. Anæmia, kidney disease, syphilis, alcoholism, gout, and inflammatory conditions of the mouth or of the digestive tract are particularly in point. People suffering from these diseases may be regarded as in a non-tolerant class.* Further, any disease which tends to make unstable the very delicate balance established in normal health between absorption and elimination of lead may precipitate a condition of lead-poisoning. Chronic alcoholism, chronic constipation, chronic intestinal disturbance, or gastro-intestinal incompetence due to oral sepsis will have that tendency.†

On the other hand, tolerance of the poisonous influence of lead may be acquired. Certain natural defensive forces of the body enable susceptible persons ultimately to become less susceptible, and by appropriate means these defensive forces may be augmented. But here, again, the equilibrium established is unstable, and the adjustment of the body to the burden of absorption may be readily upset by a secondary cause of major or minor import. Intemperate persons, chlorotic persons, and persons suffering from an infected condition of the mouth or upper respiratory tract, as well as persons suffering from the other diseases mentioned, should not be employed in any process where they are exposed to risk of absorption of lead dust.‡

The diagnosis of lead-poisoning is not in itself of any great difficulty where any one of the classical symptoms is present, *e.g.*, lead colic, paresis, or the characteristic lead anæmia. The premonitory symptoms are more difficult to determine, but to a surgeon who may watch the gradual development of anæmia, extensor weakness and other early symptoms, no difficulty should be presented.§ There is, however, no definition of what constitutes lead-poisoning, and every medical practitioner has to form his own judgment of what lead-poisoning is. Some practitioners report what are regarded as premonitory symptoms by others.|| The acceptance of variable standards by different authorities makes a difficulty in deciding what is meant by "poisoning by lead."¶ The phenomena of exposure of a human being to lead are, first, a slight loss of health, accompanied by a slight degree of anæmia, and a slight loss of weight, and a loss of subcutaneous fat. Ordinarily these temporary disturbances of health pass away, and the individual then returns to normal by a process of toleration.** In cases where toleration is not established, the rate of development of pallor and wasting are the

* "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 37; and Evidence of Dr. S. A. Smith, p. 568.

† "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 33-42.

‡ *Ib.*

§ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 111.

|| Reports of Departmental Committees on Use of Paints containing Lead in the Painting of Buildings (London), (Cmd. 632); Evidence of Dr. T. M. Legge, p. 11.

¶ Evidence of Professor Chapman, p. 597.

** Evidence of Dr. S. A. Smith, p. 567.

important facts. Associated with the wasting and pallor comes wasting of the muscles themselves, quite apart from any nerve lesions, and with it a certain degree of mental lethargy and loss of power over individual muscles or groups of muscles. The muscles of the hands and arms may show no definite wasting as compared one with the other, but early loss of power, particularly of the extensors of the wrists or fingers may be present for six months to a year before definite wrist-drop makes its appearance. In the extended position of the hands a fine tremor is frequently an early symptom of ensuing paralysis. The commonest symptom, and the one for which relief is first sought, is abdominal colic. It is intermittent, and relates mainly to the lower part of the abdomen. It is accompanied by a very marked diminution in the pulse rate, and may be relieved by firm pressure on the abdomen. Probably the elimination of lead through the lower part of the intestine accounts for the recurrent attacks of colic. Notwithstanding its definite characteristics, lead-colic may be confused with the pains of appendicitis and with colics produced by causes other than lead, *e.g.*, turpentine vapours.* Persistent headache is a late symptom of lead-poisoning generally. It occurs earlier in the painter than in any other lead worker. It may be caused by the inhalation of turpentine fumes in the painter's case. It is an exceedingly grave feature, as it not infrequently ushers in a final and fatal encephalopathy.† The blue line upon the gums used to be regarded as sufficient evidence of lead-poisoning, but it is now not accepted as a diagnostic sign of lead-poisoning. It is in its ordinary form due to the decomposition of the lead salts, which have gained access to the mouth, by the sulphuretted hydrogen produced by the decomposition and putrefaction of food, epithelial debris and other materials which have accumulated around the edges of the teeth and in the interdental spaces. A blue line is rarely seen in the mouths of persons who pay attention to dental hygiene, and perhaps never seen where the teeth are clean, the gums closely adherent to the teeth and free from pus and deposit. The line is generally formed by the absorption through small areas of ulceration in the gum and mucous glands of particles which are converted into lead sulphide by the sulphuretted hydrogen produced locally from the decomposing tissue; but it is possible that some lines are due to excretion of lead from the blood. The blue line may occasionally be found in other regions of the body.‡ The absence of the blue line is of no significance, and as an indication of lead-poisoning it is absolutely unreliable. The blue line is absent as a general rule in the case of the large class of exposed mine employees at Broken Hill. When the line is found it is evidence of no more than lead-absorption by an unclean mouth. The lead-line may be confused with the bluish discoloration of the edge of the gums that is to be found in persons who have septic mouths, and who have not been exposed to lead in any form.§

There are, roughly speaking, three types of lead-poisoning: the gastro-intestinal type, the nervous type, and the arterio-renal or nephritic type.

* "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 110-122; and Evidence of Dr. S. A. Smith, p. 571.

† "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 121; and Evidence of Dr. S. A. Smith, p. 575.

‡ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 122-126.

§ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 40; and Evidence of Professor Chapman, p. 597; and of Dr. S. A. Smith, p. 572.

The gastro-intestinal type usually occurs early after a short exposure to small quantities of lead. The nervous type is usually produced by absorption of large quantities of lead over a comparatively short period. The arterio-renal or nephritic type is produced by the absorption of small quantities of lead over a long period. This is the most chronic form, and, in some respects, from the industrial point of view, the most important.*

The most definite objective symptoms of chronic lead-poisoning are those of the nervous system. The commonest type of paralysis occurring is the one affecting the muscles of the hands, and producing wrist-drop; but this type of paralysis does not differ from paralyses caused by other poisonous conditions induced by alcohol and various infections.† Paralysis may be preceded by weakness of the extensor muscles, cramps, and tremor. The paralysis may be partial or generalised, but it is associated at first with definite functional groups of muscles, and to a curious extent varies according to the trade in which the sufferer is engaged. The preliminary action of lead is found to be typically and invariably on the blood setting up degenerative changes, microscopical in size and limited in area, affecting the vessel walls and producing a yielding of the vessel, determining minute microscopical hæmorrhages, distributed, not necessarily in one position of the body, but all over the body. Such microscopical hæmorrhages are an adequate explanation of the association of paralysis in muscle groups functionally related to various trades and industrial processes. Closely associated with paralysis are affections involving the brain, *e.g.*, delirium, lead mania, psychic depression, coma, convulsions, or epilepsy. There is probably a very considerable relationship between insanity and lead-poisoning, and there is strong presumptive evidence that alcohol is one of the chief predisposing causes in the determination of saturnine encephalopathy.‡

In relation to the muscular system the occurrence of pain of a rheumatic type is common. There is some reason to think these pains may be due to minute hæmorrhage taking place in the muscles, thereby producing localised irritation. There is no means of differentiating, in diagnosis, these pains from similar pains arising from causes other than lead.||

Determination of the presence of lead-poisoning from examination of the blood* is possible in pathological laboratories. It is important to get some method by which early lead absorption rather than lead-poisoning can be recognised, for a man may under such treatment be not only protected from the disease at the moment, but may by further treatment be made more immune than a person who for the first time is exposed to lead-poisoning. One type or class of the white cells of the body is apparently always increased in lead-poisoning. "It may be stated as a general law," said Sir Kenneth Goadby in May last, "that diminished resistance to poisons, microbic and most metallic ones, is accompanied by a decrease in the total number of white cells in the blood, and especially those mainly concerned in phagocytosis. . . . During my researches on the composition of the blood in industrial and other diseases, two important facts emerged: (1) In all

* Evidence of Dr. S. A. Smith, pp. 569-70; Evidence of Professor Chapman, pp. 594-5.

† "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, page 140; and Evidence of Dr. S. A. Smith, page 575.

‡ "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, page 142.

|| "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, page 161; and Evidence of Dr. S. A. Smith, page 571.

chronic infections—that is, small and often unrecognised ailments of microbic origin—an alteration in the proportion of white cells may be detected (the alteration is mainly a decrease in the chief phagocytes), and usually occurs before the outward signs of ill-health are manifest. This test is easy to apply. (2) That a decrease in the white blood cells, especially when the decrease affects the chief phagocytes, goes with a diminished resistance to such poisons as lead, mercury, paint, and the like. Such persons are susceptible to lead-poisoning, etc. My rapid survey of the industrial diseases indicates clearly the individual susceptibility and immunity as factors determining much of the special disease in dangerous trades, and, moreover, suggests certain general blood tests, whereby susceptible persons can be eliminated from an occupation inimical to their well-being.”*

Kidney disease of several types is associated with poisoning by lead. Where large quantities of a soluble lead salt have been ingested, very considerable strain is thrown upon the kidney, with the result that the lead salts themselves are passed through, and nephritis is set up by the irritative effect of the metal. Bright's disease and arterio-sclerosis are really different manifestations of the same conditions. Nephritis is the more characteristic condition caused by the lead, but it may be produced by alcohol, gout, syphilis, excessive physical exertion, and certain infectious diseases. Continued exposure to turpentine would be a potent cause in the determination of Bright's disease. Zinc in the form of oxide acts in very much the same way upon the kidney as does lead. There is no means of differentiating in the individual case between the various causes which operate to produce Bright's disease. There is no definite criterion of what constitutes Bright's disease caused by lead.†

The differences that exist between poisoning, as seen in painters and other lead-workers, may be stated thus:

1. Acute kidney symptoms are commoner amongst painters than they are amongst workers in white-lead factories.
2. The prevalence of gout amongst painters is greater than it is in white-lead workers.
3. Headache is an early symptom in the poisoning of painters, but a late and very grave symptom in the case of lead-poisoning in other industries.
4. The blood pressure is higher in painters than it is in white-lead workers and workers in other industries.

These differences may be caused by the exposure of the painter to the vapours of turpentine, which is a very powerful irritant to the kidney, the bronchial tubes, and the main respiratory passages. Turpentine is an infinitely stronger and greater irritant of the kidney than lead, and it works much more quickly. It causes minute hæmorrhages in the kidney substance. It is impossible to distinguish between lead and turpentine as causes of nephritis in those who are exposed to both. But it can be said that acute lead-poisoning is nearly always gastro-intestinal, and turpentine poisoning nearly always renal.‡

* “Immunity and Industrial Diseases,” Sir Kenneth Goadby, K.B.E., Lecture 27 May, 1921, Royal Society of Arts, London.

† “Lead Poisoning and Lead Absorption,” Legge and Goadby, 1912, p. 129; and Evidence of Dr. S. A. Smith, pp. 576, 589.

‡ Evidence of Dr. S. A. Smith, pp. 578-9.

An intensive clinical survey of the population of mine employees at Broken Hill was instituted during the year 1919, and is still being conducted by Professor Chapman and Dr. S. A. Smith in collaboration with other men of science and professional experience. In the course of this survey an attempt was made to measure the degrees of resistance exhibited by the mine employees to the effects of lead. Three thousand nine hundred and sixty-eight persons were examined, of whom 1,697 were miners recently exposed, to a marked degree, to lead dust in the form of sulphide and oxide, and, more remotely, exposed to carbonate of lead dust in small quantities. From time to time units of the class surveyed and persons of a similar class died, and invariably, on post-mortem examination, showed lead in their lungs. Two hundred and seventy-seven of the surveyed population (16 per cent. of the 1,697) exhibited symptoms which might have been caused by lead; and 1,420 exhibited no such symptoms. Seventy of the class showing symptoms which might have been due to lead were drawn from a group of 741 persons who had been exposed to lead dust for less than ten years; 91·7 per cent. of that group were, therefore, unaffected by lead risks. Sixty-eight of the class showing symptoms which might have been due to lead were drawn from a second group of 544 who had been exposed to lead dust for more than ten and less than twenty years; 87·5 per cent. of this second group were, therefore, unaffected by lead risks. Ninety-seven of the class showing symptoms which might have been due to lead were drawn from a third group of 289 persons who had been exposed to lead dust for more than twenty but less than thirty years; 67 per cent. of this third group were, therefore, unaffected by lead risks. Thirty-two of the class showing symptoms which might have been due to lead were drawn from a fourth group of 123 persons who had been exposed to lead dust for more than thirty years; 76 per cent. of this fourth group were, therefore, unaffected by lead risks. The figures indicate the effect of lengthening exposure, after due allowance is made for survival of the strongest and the selective effects of other conditions in the last group. The survey also showed that the kidney lesions make their appearance after exposure for between ten and twenty years, but generally do not develop until there has been an exposure of over twenty years.*

The balance of 2,271 of the 3,968 persons included in the survey were exposed, in some degree, to lead, but of these 197 only were affected with symptoms which might have been due to lead, 91·4 per cent., or 2,065 persons, being quite free of such symptoms. They were mill-workers, surface labourers, pipe-fitters underground, platemen underground, and engine-drivers underground. They included all underground workers except miners, and all surface workers.†

The Broken Hill survey showed conclusively that chronic Bright's disease may be caused by lead as an industrial disease of very slow onset. Three hundred and sixty-one of the 474 persons who showed symptoms which might be due to lead had also symptoms which fell into the arterio-renal group. They were divided into (a) a class of sixty-one persons which had increased blood pressure, cardiac changes, and albuminuria, the three typical

* Evidence of Professor Chapman, pp. 593-5.

† Evidence of Professor Chapman, p. 596.

sets of symptoms of Bright's disease; into (b) a class of twenty-nine persons which had high blood pressure and albuminuria, but no cardiac changes; into (c) a class of ninety persons with high blood pressure and cardiac changes; into (d) a class of eighty-nine with high blood pressure only; and (e) a class of ninety-four with albuminuria. The persons in the second class were all fairly clearly the subjects of chronic Bright's disease; and some of the persons in the third, fourth, and fifth classes may have been in the very early stages of Bright's disease, but those classes could not fairly be designated as cases of Bright's disease. The total number of cases of chronic Bright's disease out of the 3,968 persons included in the survey was eighty-eight, and they were not all due to lead. They represent the total number of cases of nephritis.* On the question of anæmia it was found that there was no relative increase in the number of persons who were anæmic at Broken Hill; and it was suggested by this conclusion that some of the anæmia seen in painters was not due to lead, but to some other danger to which they were exposed, such as the vapours of turpentine.

Recourse has been had by Sir Kenneth Goadby to direct physiological and chemical experiments to determine which particular constituent of paint is responsible for the poisoning suffered by painters. The bases of the paints, *i.e.*, the metallic salts, *e.g.*, lead oxide or litharge, hydrated lead carbonate or white-lead, zinc oxide and zinc sulphides, were tested by themselves and in combination with each of the constituents of which the paint was compounded. Turpentine and linseed oil were also tested, as well as the dryers, turpentine, and lead acetate. The test was to determine whether any volatile compound was given off from lead and oil at any temperature, *i.e.*, at the normal temperature, or at an abnormal temperature. Emanations were given off, but they did not contain lead, and were given off from a mixture of lead and oil most freely. It was regarded as essential that it should be determined whether the constituents of lead paint themselves reacted on one another under normal or abnormal conditions. Among the organic compounds intercepted by the tests, the presence of aldehyde and formic acid was demonstrated. Whereas white-lead and oil gave off a definite vapour with a curious painty smell at normal temperatures, zinc and oil gave off no such vapours until 59 degrees C. had been reached. The reason is that a chemical reaction takes place between the lead and the oil, and is absent as between the zinc and the oil. Lead is one of the few substances which form the peculiar compound known as linoleate. In experiments with cats, boards freshly painted were pushed into the cages every morning. First of all, white-lead paint was used. The animals became very ill, symptoms showing within a few hours. At the end of about two and a half months two of the cats had become so ill that it was necessary to destroy them. These showed, on post-mortem examination, no microscopical hæmorrhages typical of lead-poisoning, and there was no paralysis. There were, however, distinct changes in the structure of the kidney in the form of tubular nephritis, but not interstitial nephritis, which is the difference between the kidney of chronic alcoholism and the kidney of Bright's disease. From paints made with zinc oxide, zinc sulphate, and lead sulphate, the results were similar. There is a definite illness from turpentine, not easily

* Evidence of Professor Chapman, p. 598.

confused with lead, but in practice it is confused because it has been associated with paint. Turpentine introduces a new danger of illness with the painter, as well as a new illness. The exposure to turpentine would greatly increase the risk of lead-poisoning in the same way as alcohol does, and it accounts in some measure for the high incidence of Bright's and other diseases of the kidneys amongst those workers. The effect of turpentine is a matter which calls for serious investigation. Paint containing turpentine produces salivation, and the effect of turpentine on the animal body is to produce lesions of the intestines. Much depends upon the susceptibility of the individual, but people in an atmosphere where any paint—whether lead or zinc—is used with turpentine, are liable to illness. Practically there is no difference between the effects produced by turpentine in combination with lead and in combination with zinc. The later changes, viz., those that are produced by oxidation of the lead and oil, are more pronounced in the case of lead than in the case of zinc.*

In the first few hours the vapours that emanate from a mixture of zinc and turpentine and linseed oil would be as pronounced and as dangerous as those which emanate from a mixture of lead and turpentine and linseed oil. But, later, the effects differ because changes of a chemical nature take place between the oil and the lead, and such compounds as aldehyde and formic acid are given off, although in minute quantities.†

A cat exposed, by the same investigator, to lead, had 380 hours of exposure at the rate of six hours per day, and it exhibited no symptoms whatever of lead-poisoning. The lead was in the form of white-lead paste and linseed oil. Exactly similar experiments with zinc oxide paste were made. The conclusions indicated by the experiments were that there was no emanation given off of a poisonous nature affecting the cat, from the lead or zinc pastes when heated to 59 degrees C. or at the normal temperature. In a further experiment, when the cat was exposed to linseed oil, it exhibited no symptoms whatever, but where it was exposed to turpentine only it showed signs of acute illness, and at the end of two hours was so ill that it had to be removed. A cat exposed to acetate of lead and turpentine dryers showed signs of illness at the end of four hours. The illness of the cat exposed to turpentine only was much more severe in all respects than the illnesses of the cats exposed to ready-mixed white-lead paints and ready-mixed zinc oxide paints. Seven experiments were made with turpentine. It was found that it acted, first of all, as an irritant poison to the mucous membranes; that is to say, salivation was produced. Secondly, it acted as a most distinct nervous poison, producing ataxia, inflammation of the brain, and an irritation of the spinal cord. It was found absolutely impossible to continue the exposure to turpentine vapour for longer than two hours; a cat exposed for two and a half hours died suddenly. The amount of turpentine in the air of the cage varied from 6 to 10 milligrammes per litre, equivalent to what would be given off in a room 20 feet long by 10 feet high and about 15 feet wide, by half a pint of vaporised turpentine. Eight milligrammes of vaporised

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge), D.P.H., M.R.C.S., L.R.C.P., pp. 460-463, 467-8, 471.

† *Ib.* p. 463.

turpentine per litre of air is sufficient to produce symptoms of poisoning in a man. The experiments showed that the commonly noticed symptoms of headache and nausea, and also colic of a type complained of by people from the smell of paint, are explainable on the turpentine hypothesis. The turpentine is taken into the blood, where it produces changes in the composition of the blood, and very curious hæmorrhagic effects in the intestine and kidneys. Attempts to get immunisation failed.*

Sir Kenneth Goadby performed also inoculation experiments to determine the relative poisonousness of the metallic compounds and their direct absorption by the tissues. These showed that the metallic constituent of the paint, when inoculated subcutaneously, underwent definite absorption, and in each instance produced some change resulting in a diseased condition of the kidney. Even zinc salts, the oxide and sulphide, produced death of the animal when only 0.1 gramme per kilogramme of body weight was inoculated.†

Cats were, in the same series of experiments, exposed to dust such as painters would be liable to breathe in the dry rubbing-down process. Two metal salts were used in the dust, one of them being lead and the other zinc oxide. The average quantity of dust in the air for the lead cases was 0.004 gramme per litre. In the case of the zinc it was at least four times as much. The lead content was so very small that it could only just be recognised. The atmosphere of the cage was strictly comparable with that of a room in which dry rubbing-down is being done. In the case of the cat exposed to the white-lead dust, signs of poisoning were shown at the end of a fortnight. Post-mortem examinations of each cat were made after exposure for a month. The "lead" cat, before death, showed great loss of weight and symptoms of paralysis, and, post-mortem showed hæmorrhages in patches of the lungs, heart, liver, spleen, and kidney, and ulcers in the intestines. Lead was also found in the lower part of the intestines by chemical tests. The experiment proved that a small dose of lead over periods of, roughly, six hours per day, is distinctly serious. The "zinc" cat before death was very thin, but exceedingly lively. Post-mortem, the heart muscle was found to be rather flabby, but the kidney showed no hæmorrhages. There was distinct histological evidence that the metal which had been taken in by the cats' lungs had been circulating in the blood, and was being discharged. There was early inflammation of the kidney. The experiment indicated that it is not a good thing for an animal or for a man to absorb even zinc oxide dust.‡

In another series of experiments Sir Kenneth Goadby showed that when oil and paints are mixed an emanation of the aldehyde group is given off, together with carbonic acid gas. If white-lead paste were exposed to a temperature of 50 degrees C. in an electrically-heated tube, and air drawn over,

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge), D.P.H., M.R.C.S., L.R.C.P., pp. 464-5.

† Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge), D.P.H., M.R.C.S., L.R.C.P., p. 466.

‡ Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge), D.P.H., M.R.C.S., L.R.C.P., p. 466.

certain compounds, among which aldehyde and formic acid were recognisable, came over, but no lead could be discovered. Without heat, *i.e.*, at ordinary room temperature varying from 18 degrees to 20 degrees C., any vapour given off from the surface of white-lead paste with or without acetate, from dry white-lead, zinc oxide paste, zinc oxide powder, pure linseed oil, and pure lead acetate did not contain these compounds or any bacteria-inhibiting powers. Whatever evidence exists of the inhibition of bacteria from paint must be referred to some substance other than lead itself, and this substance must be one of the aldehydes, probably formic aldehyde. The inhibition of growth was much less with zinc oxide and oil than with white-lead and oil, because more formic acid and aldehyde was given off from the white-lead which has a strong affinity for oil than from the zinc white which does not chemically combine with oil. All pigments when mixed with oil and dryers give off a vapour which kills bacteria.*

Sir James Dobbie, another experimenter for the purposes of the British Committees on the use of lead in painting, showed that a current of air passed over a surface freshly painted with lead paint contains traces of lead, not as a vapour, but in the form of minute solid particles, but in such small quantity as to be negligible for all practical purposes. The nauseous vapours of drying paint being due to oil and turpentine, and not to the presence of lead, it was shown that those vapours could be disregarded.†

The conclusion of the scientists was that the lead-poisoning which occurs among painters must be due to the absorption of lead in some other form than vapour, which means that the breathing of lead dust, such as is caused by the process of rubbing-down, is the most serious cause of lead-poisoning. "I regard dust, for practical purposes," said Sir Kenneth Goadby, "as the only source of lead-poisoning. I have been fighting that question now for the last ten years, and by fighting it in that way I have succeeded in reducing lead-poisoning in certain big factories from an incidence of something like fifty cases a year down to one occasionally, and that very mild, solely by the methods of dust elimination. If you are going to eliminate the dust in painting, then you can eliminate the poisoning."‡ Absorption through the alimentary canal is very small, indeed, compared with the dust danger. Animals fed for three years with as much as a gramme of white-lead a day exhibited no symptoms of lead-poisoning. Lead becomes precipitated as an almost insoluble compound by the ordinary digestive processes. There is no appreciable risk from absorption of lead through the skin. The splashing from painting or spraying is negligible. No absorption takes place through the skin unless you rub in a soluble lead salt or ointment on delicate skin. Men handling lead, as in lead-rolling mills, whose hands are covered with lead oleate all day long, and who are very careless about washing, do not suffer appreciably from colic or from other forms of lead-poisoning. Persons engaged in washing the corrosion off the plates, and whose hands are all day long in a solution of lead acetate, very rarely develop lead-poisoning. The workman who is attending the rollers, and the man who lifts the grids

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge), D.P.H., M.R.C.S., L.R.C.P., pp. 689-692.

† *Ib.* Evidence of Sir J. J. Dobbie, D.Sc., pp. 715-717.

‡ *Ib.* Evidence of Sir Kenneth W. Goadby, p. 695.

from the corroding beds and so distributes dust, are always the most likely to develop lead-poisoning.*

Sir Thomas Oliver, in reviewing the history and possibilities of industrial hygiene at the eighty-ninth annual meeting of the British Medical Association held this year, said: "The so-called lead-poisoning of painters requires further elucidation, for the last word has not yet been said upon this important subject. Are the symptoms always and really due to lead? . . . Considerable discussion has centred round the question as to whether the symptoms met with in house-painters are the result of lead *qua* lead present in paint, or are consequent upon the inhalation of vapour arising from the solvents used, such as turpentine, benzine, and other spirituous bodies. In exposing animals to the vapour given off from freshly-painted surfaces, their health suffered, and in exposing others to the vapour of turpentine these animals also suffered, and at the autopsy I found the lungs engorged and the tubular epithelium of the kidneys on microscopical examination the seat of cloudy swelling.†

There is a paint sickness with various symptoms and diseases like nephritis, due to the emanations from the paint itself and the turpentine in the paint. Many of the so-called lead colics are not lead colics at all.* Returning to this subject in May last, Sir Kenneth Goadby was extremely emphatic. "My own investigations," he said, "into the action of turpentine on the animal body have clearly shown that the usual painter's colic—that is, the acute attack of abdominal pain, so often contracted by breathing the air of newly-painted rooms—is turpentine poisoning; many instances of this occur among painters. The affection is popularly attributed to lead-poisoning."‡ Further, a man may store up in his body an amount of lead dust, and then when he begins painting he may inhale a large amount of turpentine vapour, which, acting as a liberating cause, would induce an acute attack of lead-poisoning. This may occur with alcohol as the liberating cause four years after a man has left the painting trade. Influenza may be the factor, and secondary toxic influenza poisoning may produce wrist-drop. In animals and in men large quantities of lead are stored up and remain latent in the body for an indefinite period. All heavy metals of every sort, of which zinc is one and lead another, affect the kidneys. In the house-painter's occupation the dust from zinc that the painter is exposed to would be present in toxic doses. Zinc does not produce the same definite symptoms, *e.g.*, the gross hæmorrhage of lead, so that paralysis is unlikely to occur, but there would be sufficient zinc to cause some effect on the health, especially when associated with turpentine.§ In the later publication of his views, just referred to, Sir Kenneth Goadby adds: "I have been able to make a comparison of blood pressures of painters working with

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632): Evidence of Sir Kenneth W. Goadby (Cambridge) D.P.H., M.R.C.S., L.R.C.P., pp. 694-5.

† "Industrial Hygiene: Its Rise, Progress, and Opportunities," Sir Thomas Oliver, M.D., in *British Medical Journal*, 23rd July, 1921, p. 110.

‡ "Immunity and Industrial Diseases," Sir Kenneth W. Goadby, K.B.E., Lecture, 27th May, 1921, Royal Society of Arts, London.

§ Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (Cmd. 632). Evidence of Sir Kenneth W. Goadby (Cambridge) D.P.H., M.R.C.S., L.R.C.P., pp. 693-5.

leadless paints for some years, with the blood pressures of workers engaged in the manufacture of white-lead. This examination brings out some interesting facts. The white-lead workers, as a whole, show a much less blood pressure according to their age group, or according to the period in which they have worked, than do painters. The percentage of white-lead workers suffering from raised arterial tension is only 18 per cent. of the total of ninety examined, their ages ranging from 20 to 60; whereas amongst painters of the same age distribution no less than 56 per cent. of those examined showed increased blood pressure, the normal pressure being taken as age plus 100 in millimetres of mercury. The painter's occupation, therefore, apparently entails some other risk contributing to high blood pressure, which is not present among white-lead workers. This may be readily seen to be associated with the vehicles in which paint is used, the chief constituent of which is turpentine and its substitutes. . . . Turpentine is eliminated through the kidneys, is an irritant, and there is little doubt that the long-continued inhalation of this substance, even in small quantities, is attended with kidney changes, and is possibly the cause of heightened blood pressure and arterio-sclerosis as commonly associated with the painting trade. The series of forty-nine painters whom I had the opportunity of examining had used practically no lead paint, and had done no dry rubbing down for years.*

In the Annual Reports of the Chief Inspectors of Factories and Workshops (England) for the years 1914, 1919, the incidence of lead-poisoning under factory conditions is shown and discussed. In the report for 1914 the statement is made by Dr. T. M. Legge that nothing comes out more vividly from the close study of reported plumbism than the dependence of the symptoms on the inhalation of fumes or dust of the metal itself or of its compounds, and that the influence of absorption through the skin, or of eating food with unwashed hands is relegated to the background.† In the report for 1918 Dr. Legge asserts: "On the practical side little more is to be learnt as to how lead-poisoning is caused, and it can be taken as axiomatic that all risk lies in inhalation of dust and fume. These removed or prevented, there will be no lead-poisoning. At the same time, none of the subsidiary means for minimising effects of lead can be neglected, such as cleanliness of the person, periodic medical examination to detect early signs, so that attention may be directed to points in the process from which dust or fume must be coming off, labour-saving devices, movement study, and industrial research in the effort to find effective substitutes making unnecessary the continued use of the metal."‡ Again, in the report for the year 1919, Dr. Legge states: "As right notions of the causation of lead-poisoning are of first importance, I emphasise again my belief, after perusal of some 25,000 reports on cases which have occurred in the past, that locally applied exhaust ventilation is the sheet anchor in the protection of the workers from leady dust and fume, and that these alone are the causative agents."§

* "Immunity and Industrial Diseases," Sir Kenneth W. Goadby, K.B.E., Lecture 27th May, 1921, Royal Society of Arts, London.

† Annual Report for 1914 (Cmd. 8051), p. 81.

‡ Annual Report for 1918 (Cmd. 340), p. 66.

§ Annual Report for 1919 (Cmd. 941), p. 61.

CHAPTER IV.

THE PUBLIC VITAL STATISTICS AND THEIR INTERPRETATION.

TABLES with regard to the deaths caused by separate diseases from year to year among the whole occupied male population and in certain large occupation groups are to be found in the published statistics of the Commonwealth of Australia and the State of New South Wales. From these there can be derived figures, for groups of years, showing deaths according to occupations and ages of males aged 15 years and upwards.* Tables showing (a) the proportion of deaths at various ages, and the average age at death of males in various occupations in the Commonwealth in relation to the period 1909-15,† (b) the number of persons of various ages in the Commonwealth population of painters and males of all occupations at census, 1911,‡ and (c) the causes of death of males of all occupations, aged 15 years and upwards, in the Commonwealth in relation to the period 1909-15 § were thus prepared for the Board's assistance by its statistical officer, Mr. D. T. Sawkins. But the analytical information embraces, in the main, groups of such magnitude as to throw but a modified light upon a problem of the particularity of that now before the Board. The State Statistician, Mr. H. A. Smith, was therefore appealed to, on the Board's behalf, by Mr. Sawkins, and he provided a statement showing the principal causes of death, in age groups, of house-painters, including painters undefined, during the five years 1909 to 1913, and during 1920, and a further statement showing the deaths of males of specified occupations, in age groups, from lead-poisoning in New South Wales during the twelve years 1909 to 1920.¶ Mr. Smith emphasised, when presenting this information, the difficulties that were to be encountered in any consideration of occupational mortality in Australia.

Some care was necessary to ensure that the implications of the figures taken should not be clouded by the very extraordinary conditions of the war period and its aftermath. The year 1915 was, therefore, taken as the last of the years likely to be unaffected by those conditions.

It was found from the published statistics that the largest proportion of deaths occurred in the case of painters in the age period 50 to 54; in the case of plumbers in a slightly advanced age period; and in the case of carpenters in the age period between 60 and 64. The carpenter group is thus fairly typical of, but perhaps on the whole, better off than, the general population of occupied males. The average age of the painters who died was 53·5 years; of the plumbers, 49·3 years; of the carpenters, 60·9 years; and of all occupied bread-winners, 57·1 years. These figures relate to persons of 15 years of age and over at death. If attention be confined to persons of 20 years of age and over at death, the figures are: in the case of

* See Exhibit No. 12.

† " " " 13.

‡ " " " 14.

§ See Exhibit No. 15.

|| " " " 11.

painters, 54·2; in the case of plumbers, 51·2; in the case of carpenters, 61·6; and in the case of all bread-winners, 57·8.* Comparing the populations of painters and bread-winners generally, it was found that there were no great differences between the age constitutions of the two classes up to the age of 50, but that after that age the painter population showed an appreciably steeper decline in numbers.† Comparing the causes of deaths of bread-winners generally (over 15 years of age) in the period of seven years from 1909 to 1915 with the causes of deaths of painters, as given by the State Statistician, some material differences in the figures of the proportions of a thousand deaths attributable to each disease are manifested. The period taken should, it is thought, give characteristic relative frequencies. Lead-poisoning has a frequency of sixteen per thousand deaths with painters, as against 0·4 per thousand in the case of Australian bread-winners including painters. Diseases of the respiratory system take, in the case of painters, a strong bias in the direction of tuberculosis, but are generally not more fatal than in the case of Australian bread-winners generally. This fact seems to throw some light upon the problem already referred to of the earlier age at death of the painter class. Anæmia in chlorotic persons significantly enough takes a double toll of death in the case of painters, the figures being 5·5 deaths per 1,000 deaths in the case of all Australian breadwinners, as against thirteen in the case of the painters. Diseases of the nervous system show a frequency of 95·7 in the case of Australian bread-winners, and 120 in the case of the painters. Bright's disease has, in the case of the bread-winners, a frequency of 55·2, but with the painters a frequency of 152; and diseases of the genito-urinary group have a total frequency of 79·1 with Australian breadwinners, as against 165 with painters. As in the case of the respiratory group of diseases, here, again, one disease of the group proves particularly fatal. Falls and other accidents have a frequency of 139 with painters, as against 112·9 in the case of breadwinners throughout the Commonwealth.‡

Mr. Sawkins sums up these differences in the tabular form of Exhibit No. 16 in order that local conditions may be compared with English conditions as attested before the Departmental Committee appointed to investigate the danger attendant on the use of paints containing lead in the painting of buildings.§ Thus it is shown that the frequency of deaths from Bright's disease, tuberculosis, and lead-poisoning combined is with painters 296 per 1,000, whereas in the case of all occupied males of 15 years and over in the Commonwealth, it is 146 per 1,000. The excess of deaths in every 1,000 would thus be 150 in the case of the painters, or 15 per cent. This exhibit is a table of comparative mortality from specified causes, a table, in fact, of the relative frequencies of causes of deaths. Relative frequencies are not, of course, comparable as death-rates. They measure the incidence of deaths from specified causes only, and they should strictly be read in relation to actual rates of mortality.

* Evidence of Mr. D. T. Sawkins, p. 390.

† *Ib.*, p. 391.

‡ *Ib.*, p. 393.

§ See Table B, Appendix 12, Vol. III, Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c. (Cmd. 631), p. 14.

In the period of twelve years from 1909-1920 there were seventy-two deaths of males of all occupations in the State of New South Wales from lead-poisoning. Of those deaths twenty-two occurred amongst house and other painters, nineteen amongst silver-lead miners, six amongst labourers, five amongst printers and compositors, and four amongst plumbers. Of the seventy-two deaths, nineteen occurred in the age group 35-44, twenty-six in the age group 45-54, and fifteen in the age group 55-64. In the case of the painters six deaths occurred in the age group 35-44, eight in the age group 45-54, and five in the age group 55-64.*

In Exhibit No. 22 Mr. Sawkins has shown comparatively the estimated death-rates of painters and of males aged 15 and over in all occupations, based on deaths in 1909-15, assuming that the age and occupational distributions of the census of 1911 would be approximately correct for that period. It is not practicable to derive death-rates for the period in any other way. The rate for painters is 12·9 per thousand, and the rate for all breadwinners 12·0. In Exhibit No. 14 he has shown the comparative populations at the census of 1911. In any attempt to relate the populations and occupations to the records of deaths the inquirer must re-arrange his records with some risk of error. The deaths are not classified with all the detail of the population classes for census purposes. Thus, in the house-building group of the census there is a class of house-painter, paperhangers, glaziers, &c., but in the carriage-building group there is no separate class of car and waggon painters. The death-rates are, therefore, not likely to be pure, but there has not, probably, been any material subtraction from the figures upon which the death-rate of house-painters, paperhangers, glaziers, and signwriters, as derived by Mr. Sawkins, is based.† Exhibit No. 22, then, shows what forms a test of the correctness of the rates derived, viz., that for the first three age groups similar death-rates prevail; and that from the age of 35 years to the age of 70 the death-rate is very much greater in the case of painters than in the case of all occupations. A direct comparison must, however, be regarded with caution, for the rates are merely crude death-rates. Indexes of mortality have, therefore, been derived in the same exhibit, and relate the death-rates to a standard population. Mr. Sawkins thus found an index of mortality for painters of 15·7 per thousand, as against the twelve per thousand in the case of the bread-winners. He assents, however, to a possible margin of error of 10 per cent. in the case of the painters' figures. He then presented rough life tables, which showed that a thousand painters of the age of 20 would be reduced to the number of 350 at the age of 70, whereas a thousand bread-winners of the age of 20 would only be reduced to the number of 460 at the age of 70; the expectation of life in the painters' case being about 42 years, and that of the bread-winners about 45 years.‡

In Exhibit No. 23 Mr. Sawkins translates, with the aid of the relative frequencies, the general indexes of mortality into indexes of mortality from various causes, thus subdividing the 15·7 and the 12·0 per thousand of Exhibit No. 22. Exhibit No. 23 shows particularly that the index death-rate of painters from tuberculosis, being 2·01 per thousand, would, if it

* See Exhibit No. 11.

† Evidence of Mr. D. T. Sawkins, pp. 524-6.]

‡ *Ib.*, pp. 527-8.

applied to the whole population, instead of the existing rate of 1·08 per thousand give a formidable toll of deaths; that the index death-rate of painters from lead-poisoning is ·25 per thousand; that the index death-rate of painters from diseases of the nervous system is 1·88 as against 1·15 per thousand with the general population; that the index death-rate of painters from diseases of the circulatory system is 2·23 as against 1·95 per thousand with the general population; that the index death-rate of painters from Bright's disease is 2·35 as against ·66 per thousand with the general population; and that the index death-rate of painters from falls and accidents is 2·18 as against 1·35 per thousand of the general population. The actual death-rates would be approximately 20 per cent. less in each case. The difference between the general indexes of 12·0 and 15·7 per thousand is accounted for, in the main, by the figures for tuberculosis, Bright's disease, and disease of the nervous system. The figures with respect to lead-poisoning are of no particular significance taken by themselves. They show an index of mortality of one in 4,000 per annum, or an actual death-rate of one in 5,000, or, as given in Exhibit No. 11, eight deaths in six years for the whole of the New South Wales population of painters, which may be 45 per cent. of the Commonwealth population of painters.*

At the request of the Board, Mr. Sawkins addressed to the State Inspector-General of Mental Hospitals a request for such information as he might be able to supply with reference to the incidence of lead-poisoning as a causative factor in insanity. The correspondence thus instituted was not concluded when the sittings of the Board in its public inquiry had come to an end. It was, therefore, communicated to the parties, under cover of certain comments by Mr. Sawkins, after the 18th August, 1921, and before those parties had completed the addresses in writing which they submitted to the Board. The executive matter is attached as Appendix No. III to this report. The records of one of the greatest mental hospitals of the State—a hospital taking, roughly, 40 per cent. of the new male cases per annum—were carefully investigated over a period of twelve years ending the 30th June, 1921, and were construed, for the Board's purposes, in the light of the general experience and special knowledge of the Inspector-General of Mental Hospitals. In the result the Inspector-General was able formally to declare that plumbism as a causative factor in insanity has but little incidence in New South Wales. In comparing the figures of admissions to the mental hospitals, as thus supplied, with the figures derived by Mr. Sawkins to show the average number of deaths in New South Wales in all and certain occupations (including painters, glaziers, and signwriters engaged in work on buildings, but not including those engaged in ship-building, carriage-making, &c.) it is observed that, on the average, during each year of the period under review four painters were admitted into Callan Park, the hospital referred to, or, by reasonable inference, eight painters were admitted into all the mental hospitals and licensed mental houses in the State, while eighty-nine painters, glaziers, and signwriters died. Corresponding figures for all males (excluding dependent relatives, mainly children) were 536 and 8,196 respectively. Applying the appropriate death-rates to each case, it is shown by Mr. Sawkins that the insanity rate of painters would be, roughly, 1·2 per thousand deaths per annum, while that of

all males would be 0.8. Owing to the omission of painters not employed on buildings, and owing to the absence of any precise standard of what constitutes lead-poisoning from the medical point of view, these figures must be taken with important reservations.

In a general way, the mortality of painters conforms to the average for all industrial occupations when all causes of death are considered. The average based upon the deaths in 1910, 1911, and 1912 of the six great occupational groups of the professional class, the domestic class, the commercial class, the class of males engaged in transport and communication, the industrial class, and the class of primary producers was found by Mr. Sawkins to be 12.5 per thousand; and that of the industrial class (population 454,000) when distinguished from the class of males engaged in transport and communication (population 153,000) to be 16.5 per thousand, or, when not so distinguished, 15.3 per thousand. The great difficulties besetting the whole question of occupational mortality cause these death-rates to be put forward with diffidence.* They are, however, the best guide that can be had from available statistics, and may, therefore, be brought into use. They suggest that whatever is the effect of a comparison of the condition of painters with the conditions of all occupied males, the effect of a comparison of the condition of painters with those of industrial workers generally, when all causes of death are taken into account, should be reassuring. This point was not overlooked by parties and some of the medical witnesses before the Board. There are undoubted limitations to a mortality comparison with all occupations as the standard, but these limitations are probably less mischievous than the limitations attaching to a mortality comparison with all industrial occupations as the standard. Any adequate treatment of human costs necessitates the simultaneous treatment of the whole of the vital factors involved. If this principle be not accepted, then there may be set, for the industrial classes, a measure or standard of life which will quickly reduce the community's measure or standard of life. Sections of the community may claim comparison with the standards attained by the community as a whole. The paramount consideration is the organic conception of society. The fable of the belly and the members illustrates the alternative of this position.

Mr. Sawkins, when pointing out that the difference between the general index of mortality of 12.0 and the painters' index of mortality of 15.7 per thousand is accounted for probably by the figures for Bright's disease, tuberculosis, and diseases of the nervous system, added, "Of course I do not know how far tuberculosis and Bright's disease are due to lead. That is a matter for medical experts."† Professor Chapman and Dr. S. A. Smith offered to supply the necessary expert medical interpretation of the statistics. Dr. Smith, in giving his evidence before the Board, stated that the Broken Hill survey showed that the effects of lead dust upon the lungs were in no way comparable with the effects of siliceous dust; that there was no fibrosis of the lung or any lesion or other destructive effect in or upon the tissues of the lungs.‡ "I have, for the purpose of this inquiry," added Dr. Smith

* Evidence of Mr. D. T. Sawkins, p. 231.

† Evidence of Mr. D. T. Sawkins, p. 529.

‡ Evidence of Dr. S. A. Smith, p. 564.

"searched, for example, every text-book in the library of the British Medical Association, and I can find no reference there to any conjunction between the two conditions (lead-poisoning and tuberculosis). Perhaps the most authoritative book that one could mention in regard to the causes of tuberculosis is Corbett's "Causes of Tuberculosis" published in 1918 in Cambridge. In that, though he discusses the effects of various trades upon the incidence of tuberculosis on the workers, he does not mention the question of lead he does not mention anything of the relationship between lead and tuberculosis, so I must confess that it was an entirely new view to me that there was any conjunction between the two." The witness had in mind Exhibit No. 15 when giving this evidence. He then added: "At Broken Hill where we investigated a population which was exposed to both lead and tuberculosis to a greater degree than usual, we found that out of 361 people suffering from symptoms that might possibly have been due to lead-poisoning only nine of those cases had tuberculosis. . . . That is additional evidence to prove that the lead factor is not responsible for the rise in death-rates as between 90 and 128."* On the subject of the possible toxic effect of turpentine upon the lungs and their capacity to resist tubercle, Dr. Smith said: "We have no data upon which to base any expression of opinion upon that point. After all, our knowledge of the effects of continual doses of turpentine is of comparatively recent date."

Professor Chapman's evidence was to the same effect: "There can be no direct relationship between tuberculosis and lead. Lead-poisoning cannot in any way produce tuberculosis. The question, however, arises as to whether persons who are poisoned with lead are increasingly susceptible to tubercle. At Broken Hill we had a population which was, I think, useful to deal with in this connection. It was a population markedly exposed to tuberculosis; it had a very high morbidity rate of tuberculosis, and was also markedly exposed to lead. . . . We found there were sixty-one persons who had taken in lead and were susceptible to lead to the extent that they had increased blood pressure, cardiac changes, and albuminuria. Of those sixty-one none had tuberculosis. Of the next group with high blood pressure and albuminuria (twenty-seven), none had tuberculosis. Of the ninety persons with high blood pressure and cardiac changes nine had tuberculosis. Of the next group with high blood pressure only (eighty-nine), there were none with tuberculosis. Of the cases with albuminuria only (ninety-four), there were none with tubercle. In other words, out of 361 persons who may be assumed to have some possible symptoms of poisoning with lead nine only were cases of tuberculosis; and of the eighty-eight persons who had the most marked sign of any affection with lead none at all had tubercle. . . . It appears as if people who were poisoned with lead became resistant to tubercle. Of course, there are other places in which that does not appear to hold. . . . The association with lead at Broken Hill has certainly not increased the morbidity of tuberculosis amongst the miners. . . . Again, I would like to point out that the liability to tuberculosis amongst painters is not really so very high. . . . That figure of 120, there, is not very dissimilar from the figure for tuberculosis among persons in the industrial class. It is about that type of figure. . . . You have

* Evidence of Dr. S. A. Smith, pp. 580-1.

to recollect the average figure includes a very large group of primary producers who are, I may say, altogether free from tubercle, and that tends to bring the average very much down.”* Upon the suggestion that turpentine might predispose to tuberculosis, Dr. Chapman said that turpentine would not have any specific effect upon the lungs except to act as an irritant.†

From the matter supplied by these witnesses with respect to the physiological effects of lead in areas of the body other than the lungs, and quoted at length in the chapter of this report immediately preceding, it will be seen that neither entertains any doubt as to the ability of lead to contribute to the death rates and death frequency figures from Bright’s disease, provided by Mr. Sawkins. Both, however, suggest that the influence of turpentine in the case of painters must not be overlooked in this connection.‡

The Board, in its endeavour to find means of testing the explanations thus offered, was, in the first place, struck with the great similarity of experience in relation to painters in England, America, and Australia. As has already been mentioned, Exhibit No. 16 was prepared with a view to the comparison of English and Australian conditions upon the model of Table B of Appendix 12 to the report of the English Departmental Committee appointed to investigate the danger attendant on the use of paints containing lead. The English table is reproduced as Appendix IV hereto. Reference to American experience in respect of the proportionate mortality of painters, glaziers, and varnishers from pulmonary tuberculosis in the United States registration area is to be found in the evidence of Mr. Sawkins, and in a bulletin of the United States Bureau of Labour Statistics published with the authority of Dr. Frederick L. Hoffman in 1918, under the title of “Mortality from Respiratory Diseases in Dusty Trades.”§

Legge and Goadby, dealing with the English statistics, remark upon the distinction that ought to be drawn between causation and association before admitting as sequelæ of lead-poisoning diseases of bacterial origin, such as phthisis or pneumonia or any disease to which the affected person may be thought to have been rendered more prone by reason of lead employment. They say: “The contention that a person may have been debilitated by lead-poisoning is no proof that the enfeeblement of the constitution was the cause either of the bacillus gaining entrance into the lung, or of the ultimate fatal issue from the engrafted diseases. Such assertion in every case must rest on supposition. Evidence that lead-poisoning predisposes to phthisis is not necessarily made stronger in our opinion by existence during life of clinical symptoms, or, in their absence, of detection of lead in the tissues post-mortem. In classifying causes of death, the general rule should be to select from the several diseases mentioned in the certificate the disease of the longest duration. Exceptions to this rule are that definite diseases ordinarily known as constitutional diseases, should have preference over the other diseases mentioned. After thirty-five years of age, certificates of death from lead-poisoning are almost always filled in in association with other diseases which are the usual causes which lead to mortality generally.

* Evidence of Professor Chapman, pp. 601-2.

† Evidence of Professor Chapman, p. 600.

‡ See also evidence of Professor Chapman, p. 599.

§ Bulletin No. 231. U.S. Dept. of Labour, Bureau of Labour Statistics, 1918.

But neither phthisis nor pneumonia, nor any acute disease of the heart or lungs, nor valvular disease of the heart, nor, indeed, any acute febrile condition, can have direct relation with—*i.e.*, be a sequela of—lead-poisoning.* The same authors, however, when combating the contention that because lead workers die from certain diseases more frequently than all males, such diseases must be the sequelæ of lead-poisoning, say the excess of deaths from phthisis and respiratory diseases is sufficiently accounted for in the cases of workers in potteries, in spelter, in printing and in file-cutting by inhalation of mineral and metallic dust, or vitiation of the atmosphere.†

Upon the subject of the American statistics, Dr. Hoffman remarks that the serious importance of lead-poisoning in paint manufacture and the painters' trade probably accounts for the very limited consideration which has been given to the equally important question of a possibly enhanced liability to pulmonary tuberculosis. In discussing what he describes as Dr. Grandhommes' most important investigation in 1893 of health conditions at the works of Messrs. Meister, Lucius, and Brunning, of Frankfort, Dr. Hoffman says: "Aside from the considerable number of cases of industrial injuries, as far as the experience permits of a definite conclusion, it would appear that the mortality from pulmonary tuberculosis in the German paint and colour industry, even under a well considered plan of hygienic supervision, is unduly high; and that it is safe to assume that the excess in the incidence of the disease is directly attributable to the more or less considerable risk of continuous inhalation of metallic and mineral dust, increased in the severity of its effects by the presence of poisonous substances, generally arsenic and lead." Again, upon the subject of the mortality of painters, glaziers, and varnishers considered as a group, Dr. Hoffman says: "The group, unfortunately, is so very large, and inclusive of so many widely different specific employments or occupational conditions that the results of the analysis must be accepted with reserve.‡ Proportionately, of course, painters predominate in the group under consideration, and it is a safe assumption that the other occupations do not very materially modify the proportionate mortality figure from pulmonary tuberculosis. Thoroughly specialised investigations, however, regarding particular employments (for, of course, even the term 'painter' covers quite a group of more or less varying occupations) might, and probably would, disclose important differences in the specific liability to pulmonary tuberculosis, particularly with reference to exposure to health-injurious minerals and metallic dust. Among painters naturally the liability to lead-poisoning is a special occupational danger, but the actual mortality from lead-poisoning is proportionately so small, at least among American painters, that the relative effect of the same cannot be considered of material importance. According to the census report, out of 7,294 deaths of painters, glaziers, and varnishers from all causes, 1,361, or 18·7 per cent., were from pulmonary tuberculosis. . . . How far the relatively high mortality from pulmonary tuberculosis as determined by this comparison is attributable to the special risk of lead-poisoning

* "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, p. 60.

† *Ib.* p. 57.

‡ "Mortality from Respiratory Diseases in Dusty Trades, Fred. L. Hoffman, 1918, Bulletin No. 231 of U.S. Bureau of Labor Statistics, pp. 273-278.

cannot be determined at the present time, but it is a safe conclusion that there is some such relation, although the recorded mortality from lead-poisoning among American painters is comparatively low. In other words, it is rather because of complications resulting from gradual lead absorption as a factor in other diseases, including pulmonary tuberculosis, than as a direct cause of death that lead-poisoning assumes importance in occupational or industrial hygiene. Aside from the relatively high proportion of deaths from pulmonary tuberculosis, the mortality from non-tuberculous respiratory diseases among painters, glaziers, and varnishers in comparison with farmers, planters, and farm labourers is not excessive. . . . (Other) statistics, though, unfortunately, too limited for entirely safe conclusions, may be accepted as a sufficiently trustworthy indication that paint-mixers are unquestionably liable to an excessive mortality from pulmonary tuberculosis, which, in all probability, upon further inquiry, will be found to correspond proportionately to the nature and the quantity of the dust inhaled in the mixing processes. Even in the case of men employed in paint factories, excluding mixers, the experience is fairly suggestive of unfavourable conditions, though obviously much less so than those known to exist in the mixing processes separately considered. When the data for paint factories are made to include mixers, the experience is represented by 124 deaths from all causes, of which twenty-seven, or 21·8 per cent., were from pulmonary tuberculosis. At ages 35 to 44 out of twenty-five deaths ten, or 40 per cent., were caused by pulmonary tuberculosis, which, of course, is decidedly excessive.”* Dr. Hoffman’s general conclusions are, in the circumstances, very interesting. He says: “In the absence of more definite and trustworthy data, the foregoing brief observations concerning an important and rapidly-extending industry are suggestive of the urgency of better sanitary conditions, chiefly the prevention of dust, both by more adequate dust prevention processes at the point of origin, and the use of respirators in processes where the control of the dust danger must necessarily be one of exceptional difficulty.”

Impressed, as it is, with the reflections thus made by authorities well-qualified to comment upon the extraordinarily similar effects of British and American experience, the Board reverts to certain matter contained in the report which it published in 1918 on the subject of the prevalence of miners’ phthisis and pneumoconiosis in certain industries. In that report the Board had occasion to quote, as a guiding principle, a pronouncement by the English Royal Commission on Metalliferous Mines and Quarries in the following terms: “Further reflection, however, indicates that when the phthisis death-rate is considered in relation to the presence of free crystalline silica in dust, an intimate connection is found to exist, that in every case where an excessive phthisis mortality has been found amongst those exposed to dust inhalation this substance is present in the dust; . . . it appears to be the opinion of the most competent authorities that all dust is more or less detrimental to health, though in point of injuriousness there is no comparison between the less dangerous and the more dangerous kinds of dust. Exposure, however, to the inhalation of dust in confined places

* “Mortality from Respiratory Diseases in Dusty Trades,” Fred. L. Hoffman, 1918, Bulletin No. 231 of U.S. Bureau of Labour Statistics, pp. 273-278.

where it is likely to be concentrated, even when the dust is of the less injurious character, is always liable to be prejudicial.”*

The Board has been made aware, in the course of its inquiry, that painters are, as a class, exposed to the inhalation of dusts of the siliceous or more dangerous type, and that they are frequently exposed, when dry rubbing down, to that dust in confined spaces where it is likely to be concentrated. If the principle, then, as laid down by the English Commission is to be applied to local circumstances, the excessive mortality amongst painters should be attributable to the siliceous dust to which they are exposed. But in this connection it is necessary to discuss some additional matters.

The first report of the Broken Hill Technical Commission of Inquiry shows that the majority of those who work on the mines at Broken Hill, either on the surface or underground, showed no sign of the accumulation of dust in their respiratory organs, and that in the cases of those who did accumulate dust, the composition of the material which accumulated was mainly of insoluble silicates, and differed widely from the composition of the dust which must have been breathed owing to the mineral lode of Broken Hill, even in its more siliceous portions, containing less than 20 per cent. of free silica, and having as its characteristic feature a high content of galena and blende.† The same report also states that of the 3,967 mine-workers clinically and radioscopically studied, 193 were found to exhibit signs of pneumoconiosis, and 124 (including fifty-nine of the 193) to be suffering from pulmonary tuberculosis. Where *post-mortem* examinations of the lungs of deceased miners could be made, they were made, and in seven out of eight of such examinations lead was found to be present in the lungs. The eighth case was that of a miner who had not worked as such for twelve years. The subjects of *post-mortem* examination were also all but one silicotic, but the leadless lung was not also that free from silicosis.‡ Significantly enough, the dust inhaled by painters is a combination of mineral and metallic, of siliceous and lead dusts, it being produced by the work of rubbing down paints of a metallic base with sand or glass or other similar abrasive papers and substances.

At this point it is interesting to quote the opinion of Professor J. S. Haldane, who was a member of the British Royal Commission on Metalliferous Mines and Quarries, and whose authority upon the question of dust risks is undeniable. Experiments with animals made by Dr. Haldane showed that all the dust particles in the lungs are taken up into the protoplasm of certain of the epithelial cells lining the air cavities of the lungs, and, in the case of coal dust or shale dust, these cells detach themselves and wander away with their load of dust particles. In the case of flint or quartzite dust nearly all the dust remains *in situ*, and the cells wander out with it only to a comparatively small extent. “If the danger,” said Dr. Haldane, “were due to mere hardness or sharpness, crystalline dust, even when mixed with other dust, might be expected to be dangerous, yet the

* Royal Commission on Metalliferous Mines and Quarries, Second Report, p. 144, quoted in Interim Report of the N.S.W. Board of Trade on the Prevalence of Miners' Phthisis and Pneumoconiosis in Certain Industries, 1919, p. 22.

† Report of the Broken Hill Technical Commission of Inquiry, 19th November, 1920, pp. 69-71.

‡ *Ib.* p. 73.

quartz in shale and other hard stone is actually harmless in practice. The mere chemical composition of a stone does not seem to matter, but a quality in the dust that does seem to matter is its power to adsorb other substances. Particles of coal dust and other insoluble carbonaceous matter possess this property in high degree, and it is possessed in a less degree by such substances as shale; but crystalline substances, like quartz, seem to have very little adsorptive power. Now, it can well be imagined that insoluble dust particles are attractive and stimulating to dust-collecting cells in proportion to the soluble substances adsorbed in the dust particles, and that particles containing little of these substances will be correspondingly unstimulating. As regards the second question, the particles of quartz are taken up by the dust-collecting cells, though these do not readily wander away with them. But if enough of the juicy adsorbent particles are also present, they will stimulate the cells sufficiently, and consequently the whole of the dust, including the quartz, will be removed. In this way it can be seen how a mixture of quartz with silicates, as in shale dust and the dust from many hard stones, causes no harm. It can also be seen why the dust in the Transvaal gold-mines is so much more harmful than in some other districts where the metal mined is also in quartz. In the Transvaal both the gold-bearing reef and the surrounding country rock is quartzite, and the quartz dust is thus very pure. In Mysore, on the contrary, the country rock is not quartzite, and the dust is, therefore a mixture containing probably enough of the stimulating dust to stir the dust-collecting cells to activity.”*

If Dr. Haldane's theory be accepted and applied to the Broken Hill circumstances, the suggestion at once arises that the dust of the mines at Broken Hill ought not to be regarded as accounting for the prevalence of silicosis amongst the employees of those mines unless there be something also combined with the dust that is calculated to render the epithelial cells incapable of benefiting by the stimulation that they should derive from the adsorptive action of the non-siliceous matter in that dust. Lead is implied as the element in the dust that changes its character from what should be a harmless, to what is a seriously harmful, dust. The small proportion of silica in the mineral lode at Broken Hill should not produce fibrosis of the lungs extensively unless it is aided rather than hindered in its destructive work by the substances with which it is associated. Indeed, the report of the Technical Commission makes it clear that the majority of the mine employees do not accumulate dust in their lungs, even over such great periods as thirty years of work. There is, further, considerable warrant for the statement that the majority of male adults are tolerant of lead to a greater or less degree;† the evidence of Professor Chapman and Dr. S. A. Smith points strongly to this conclusion. Moreover, lead-miners in England do not suffer from lead-poisoning, but from pneumoconiosis and pulmonary tuberculosis.‡ Those, then, who do not accumulate dust at Broken Hill may be unaffected by the adsorption of zinc and lead with the siliceous particles in the dust, and those who do accumulate dust and acquire silicosis

* “Dust Inhalation in Mines,” *The Times Engineering Supplement*, June, 1918, p. 129.

† Evidence of Professor Chapman, p. 592.

‡ “Industrial Hygiene: Its rise, progress, and opportunities,” Sir Thomas Oliver, M.D., in *British Medical Journal*, 23rd July, 1921, p. 109.

may be such as yield to the effects of the metallic poisons *in situ*. The circumstances of the painter are strictly parallel. The amount of silica inspired by the painter must be proportionately small. He is not rubbing down all of his working days, or every working day, and the dust produced by the process of rubbing must be largely metallic and organic as well as siliceous. Yet it may well be that the comparatively small amount of silica in the dust which he inhales is made for those of his class who are non-resistant to lead particularly noxious to the lungs.

The fact that 361 of the 474 more or less leaded persons discovered at Broken Hill showed arterio-renal symptoms, and in nine cases, only, tuberculous symptoms is not destructive of the theory now advanced. It does not appear how many of the 193 silicotics were leaded except from what is to be learnt with respect to the post-mortem work, which showed that, with the exception of one very abnormal case, all of the persons having lead in their lungs were silicotics. Again, it does not appear from the evidence whether the nine tuberculous and nephritic subjects were in or out of the class of silicotic and tuberculous subjects. If they were in that class, then nine represents a high percentage of the class. Further, the selective action of lead cannot be overlooked. Sir Thomas Oliver points out that lead of itself is a cause of arterio-sclerosis without the kidneys being necessarily affected and that a female lead worker can have several miscarriages and stillbirths, and she may also bear infants who die shortly after birth, and in whose internal organs lead may be found while she herself remains free from symptoms.* It is apparently by no means necessary to assume that lead-poisoning when it occurs must be generalised or that lead compounds absorbed with silica and imprisoned in the fibrotic tissue of the lung will escape to do their work of destruction in the arterio-renal area.

It appears to the Board to be of the utmost significance that dust which, under the ordinary conditions of its inhalation, should not produce the fibrotic or mechanical effects which predispose to tuberculosis, should, when in association with certain metallic dusts, such as those of lead and zinc, produce such striking effects as are indicated by the work of the Broken Hill Survey in the case of miners, and by the inquiry of this Board in the case of painters. The Board cannot escape the conclusion that lead and zinc are co-efficient causes with siliceous dusts of the tuberculosis in painters, and probably in the Broken Hill mine employees also. It accordingly interprets the statistical evidence as showing tuberculosis to be one of the effects of lead in association with siliceous dusts, and therefore an effect for which lead is directly if only partially responsible.

In relation to Bright's disease the problem presented to the Board is similar but less complex. By the evidence of Professor Chapman and Dr. S. A. Smith it is clear that some proportion of the nephritis from which lead workers suffer must be attributable to lead dusts. On the same subject Legge and Goadby say: "The statistical evidence from death certificates published in the decennial supplements of the Superintendent of Statistics is of significance not only in enabling comparison to be made between one industry and another in regard to mortality from lead-poisoning, but also in

* "Industrial Hygiene: Its rise, progress, and opportunities," Sir Thomas Oliver, M.D., in *British Medical Journal*, 23rd July, 1921, pp. 109-10.

determining the other causes of death most frequently entered on death certificates of lead workers, and, therefore, if they are in high excess, as compared with male workers generally, they are to be ascribed, with some degree of certainty, to deleterious effects of lead on some of the principal organs. . . . With the exception of the strikingly greater proportion of deaths among lead workers from Bright's disease, the figures are too contradictory to draw deductions from as to what are sequelæ of lead-poisoning. But this figure, 160, as compared with thirty-five for all males is confirmatory evidence, if any were needed, that chronic Bright's disease is a sequela.* They have also demonstrated that zinc in the form of oxide behaves in very much the same way upon the kidney as does lead.† The four authorities referred to—Sir Kenneth Goadby, Dr. T. M. Legge, Professor Chapman, and Dr. Smith—all, however, emphasise the association of turpentine with lead dusts as a probable causative factor when the prevalence of lead-poisoning amongst painters is considered. Legge and Goadby, after indicating experiments made by them with turpentine, claim to have demonstrated that the effect of turpentine when inhaled by the painter must be to act as a contributory cause of lead-poisoning.‡ Sir Kenneth Goadby, in giving his evidence to the Departmental Committee on the Use of Lead in Painting, indicated that experiments made by him showed that when turpentine is taken into the blood it produces changes in the composition of the blood and very curious hæmorrhagic effects in the intestine and kidneys. His views in this connection are given with more detail in the preceding chapter of this report. Dr. Smith quoted the opinions of Sir Kenneth Goadby with approval.§ Dr. Chapman was even more emphatic. "Chronic nephritis," he said, speaking of what might happen should the use of lead be prohibited, "would still cause an excess of deaths, and so would diseases of the nervous system. That would be due to the effect of turpentine. We cannot express that in figures."||

Here, again, the Board interprets the statistical evidence as showing that lead dust, the dust of zinc oxide, and turpentine are independent and co-existing causes of the Bright's disease or nephritis to be found in painters. Thus, while it is unable to say what porportion of the responsibility for effects produced should be attributed to each one of the factors, it holds that the excess of mortality and morbidity in the case of painters over persons in other occupations due to nephritis in all of its forms is the direct effect of those causes.

* "Lead Poisoning and Lead Absorption," Legge and Goadby, 1912, pp. 57-60.

† *Ib.* p. 130.

‡ *Ib.* p. 109.

§ Evidence of Dr. S. A. Smith, p. 571.

|| Evidence of Professor Chapman, p. 604.

CHAPTER V.

THE EVIDENCE FROM ADMINISTRATIVE AND TRADE EXPERIENCE.*The Regulation of Hours by Industrial Tribunals.*

The Sydney Trade Union of Painters was one of the first of the industrial unions to apply to the Court of Industrial Arbitration for an award regulating industrial conditions. The application of the union was made in the month of October, 1902, and included a claim that the ordinary hours of labour should not be more than forty-four per week. That claim was, because of the accepted lead risks of the industry, admitted by the respondents to the application, the Master Painters and Decorators' Association. The Court, by award dated 21st March, 1904, adopted forty-four hours as the week's work because of the admission referred to, but reserved to itself the right to review the question of hours when later considering the convenience and economy of granting uniformity of hours in the building trades.* The union, nevertheless, on the 13th August, 1907, filed with the Registrar of the Court an agreement made between itself and the New South Wales Interstate Steamship Owners' Association, the New South Wales Coastal Steamship Owners' Association, and Mort's Dock and Engineering Company, Limited, in which there was a stipulation that the ordinary working hours should be forty-eight per week, to be arranged according to the established custom of the employers' shops, works, and premises.† This agreement was made with other employers in the following year.‡

In 1908 the union, after a strike against the Master Builders and the Master Painters, made an agreement with the Master Builders which became an award on the 20th May, 1908. As the Master Painters held out against the union, the Court was asked to make the award a Common Rule. The terms of the award in respect of hours were: "The ordinary hours of labour shall be forty-four per week, but where desired by the employer, and where the hours worked on the building are forty-eight hours per week, then members of the union shall work the longer hours; but the working hours per week shall not exceed forty-eight excepting at overtime rates as stated hereafter."§ This award was rescinded as from the 1st July, 1909, by Order of the Court,|| an Industrial Board (Painting Trades, Cumberland) having, under the Industrial Disputes Act, 1908, determined the conditions of employment in the painting industry. The award of the Board prescribed hours in the terms of the award rescinded.

On the 16th October, 1909, the Painting Trades (Newcastle) Board made an award determining the conditions of employment in the industry in the Newcastle district. The award prescribed that the ordinary hours of labour

* 1A.R. 141, also 3 A.R. 190.

† 6 A.R. xxxii.

‡ 7 A.R. iv., vi., and xiv.

§ 7 A.R. p. 289.

|| See 8 A.R. 257.

should be either forty-four or forty-eight hours per week as desired by the employers, but the working hours per week should not exceed forty-eight.*

So far as concerns the painters in the car and waggon-making industries, the hours were fixed at forty-eight by the Coachmaking (Road) Board on the 24th November, 1909, and for the rail section by an award dated the 12th October, 1910, made by the Industrial Court on appeal from a determination of the Coachmaking (Rail) Board of the 23rd February, 1910.† The coach-painters in the employ of the Railway Commissioners had meanwhile had their hours fixed at forty-eight per week, on the 22nd October, 1909, by the Government Railways and Tramways (Car) Board. Painters in the Permanent Way Branch of the Railway and Tramway Services had their ordinary hours of labour fixed at forty-eight by an award of the Permanent Way Board, on the 29th October, 1910.‡ Painters in the Interlocking Branch of the same Services were placed in the same position by award of the 3rd July, 1911.§ Painters in the employ of the Metropolitan Water and Sewerage Board were, on the 31st October, 1911, placed under an award which prescribed a working week of forty-eight hours.||

By an award of the Painters (Cumberland) Board, gazetted on the 13th December, 1911, it was ordered that the hours of labour should be forty-four or forty-eight per week as might be agreed upon between the employer and the employee. By an award of the Building Trades Group, No. 8 Board, for country painters, gazetted on the 31st December, 1912, the ordinary hours of labour were fixed at forty-eight per week, or forty-four if agreed upon between the employer and employee. By an award of the same Board, but with jurisdiction extended to cover painters other than ship-painters and coach-painters throughout the State (with certain exceptions applying to employers) the ordinary hours were fixed as from the 1st May, 1915, at forty-eight per week. This award was gazetted on the 5th May, 1915. On the 8th September, 1916, a further award by the same Board was gazetted, and the hours were again fixed at forty-eight per week. On the 28th March, 1918, an award by the same Board was gazetted with reference to night-shift work. This award prescribed a choice between five shifts per week of eight and three-quarters hours, or six shifts per week of eight hours. The Board again made an award for painters and decorators throughout the State, which was gazetted on the 29th November, 1918, and which prescribed forty-eight hours as the ordinary week's work.

The hours in the factory industries did not vary from the prescribed 48 per week. A determined attempt to secure the shorter week of 44 hours in factory work on the ground of the health risks incurred by the parties was made in October, 1909, upon the application to the Government Railway and Tramways (Car) Board for the award of the 22nd October, 1909. Medical witnesses were called, and the question of lead-poisoning discussed at length, but without avail. The loss of the shorter working week in the building trades industries was explained on behalf of the employees during

* See 9 A.R. 94.

† See *Industrial Gazette*, Vol. 1, pp. 244 and 249.

‡ *Ib.* p. 382.

§ *Ib.* p. 370.

|| *Ib.* p. 326.

the Board's inquiry. It appears that the employees bartered away their claims to the shorter week in return for an increase in wages.*

The question of reduction of the working hours because of the health risks in the industry was not again raised until inquiry was made in 1920 by a Royal Commission into the question of a proposed reduction of the standard working week from forty-eight to forty-four hours. The Royal Commission's Report, dated the 22nd November, 1920, refers to the painters' claim in these words: "The allegations made as to the unhealthiness of painting require further investigation. On the evidence I cannot hold that the occupation is sufficiently unhealthy to distinguish it from others, but the evidence given as to the prevalence of lead-poisoning makes it advisable that this occupation should be the subject of some special scientific inquiry."†

By the Eight Hours Act of 1916, as amended by the Eight Hours (Amendment) Act, 1920, it was provided that the Governor might, by proclamation in the *Government Gazette*, adopt the report and recommendation of the Court of Industrial Arbitration sitting as a Special Court under that Act, and might declare that the working hours recommended by the Special Court should from a date fixed by the Proclamation be the ordinary working hours for the employees therein mentioned, subject to such qualifications and conditions as might be contained in the report. A report and recommendation of the Special Court having been made on the 11th April, 1921, with regard to the weekly hours of employees engaged in the building industry in the State of New South Wales, the Governor, on the 14th April, 1921, adopted it, and declared that, with certain exceptions, not now relevant, the ordinary working hours of carpenters, joiners, stonemasons, plumbers, plasterers, fibrous-cement makers and fixers, marble and slate workers and granite polishers, tuck-pointers, slaters, tilers, and shinglers, painters and house decorators, metal-ceiling fixers, electrical fitters, bricklayers and builders' labourers engaged in the erection, repair, maintenance, and demolition of buildings should be forty-four per week, to be worked in five days of eight hours, and one day (Saturday) of four hours.‡

The Statutory Right to Compensation for Lead-poisoning.

The risks of the industry should, it might be supposed, be found to be reflected in claims made under the provisions of the Workmen's Compensation Act, 1916, No. 71. This Act came into operation on the 1st July, 1917. Section 12 of the Act provides that where a certifying surgeon appointed under the Act for the district in which a workman is employed certifies that the workman is suffering from a disease mentioned in the third schedule to the Act, and is thereby disabled from earning full wages at the work at which he was employed; or where a workman is, in pursuance of any Act or of any regulations made under any Act, suspended from his usual employment on account of having contracted any such disease; or where the death of a workman is caused by any such disease, and the disease in each case is

* See evidence of Mr. James O'Brien, p. 350.

† Report of the Royal Commission (His Honor Judge Beeby) into the proposed reduction of the Standard Working Week from 48 to 44 hours (N.S.W.), 1920.

‡ See *Government Gazette* No. 37 of 16th April, 1921.

due to the nature of any employment in which the workman was employed at any time within the twelve months previous to the date of the disablement or suspension—whether under one or more employers—the workman or his dependants is or are to be entitled to compensation under the Act.* The schedule contains a reference to lead-poisoning and its sequelæ. To establish a claim there must either be a certificate of the certifying surgeon, or suspension on account of the disease, or death caused by it. The disease must be due to the nature of the employment, and the employment must have been followed within twelve months prior to the date of disablement or suspension. The schedule comprises two columns. If the disease was acquired while the workman was employed in any one of the occupations in the second column of the schedule it will be assumed that it was due to the nature of the employment unless the employer proves to the contrary. If the disease is certified to, but the occupation is not one of those specified in the schedule, the workman must prove that the work of his occupation was the cause of his disease.

A certifying surgeon for the Metropolitan district of Sydney was not appointed until the 24th January, 1918, and the first examination made by him took place on the 10th September following. In practice the union secretary sends the men to be examined to the certifying surgeon, who, in his turn, sends them to the Department of Labour and Industry, which administers the Workmen's Compensation Act, for an authority for their examination. In effect, then, the Minister for Labour and Industry refers the patient to the certifying surgeon, and is responsible for the cost of his medical examination.†

Between the 1st April, 1919, and the 21st November, 1920, the certifying surgeon of the Sydney Metropolitan District was called upon to examine twenty cases of lead-poisoning drawn from all industries,‡ and including sixteen house-painters.§

The opinion is held in administrative circles that the successful claims for compensation for lead-poisoning under the Act would not fairly represent the conditions or risks of any particular industry, because many of those suffering from lead-poisoning are unaware of the fact until they are very seriously involved, and perhaps unable to continue at work. This condition of things is, it is said, evident, even when the men are receiving medical attention from their lodges.|| It is further suggested as the result of administrative experience that there must be some cases of poisoning that are not so diagnosed; that there are other cases not compensated under the statute because full wages are payable during illness either at Common Law or out of personal considerations; that there are cases which do not disable the workman for one week, as required by the Act; that there are cases in which a man would not put forward a claim for fear of offending employers; that there are cases in which the claim may have failed for merely technical reasons, *e.g.*, because the person has recovered before consulting the certifying surgeon, or because the certifying surgeon has given a certificate in

* Workmen's Compensation Act, 1916; sec. 12.

† Evidence of Mr. R. J. Perdriau, p. 77.

‡ Evidence of Dr. J. B. Nash, p. 99.

§ *Ibid.*, p. 106.

|| Evidence of Mr. R. J. Perdriau, p. 78.

irregular form;* that there are the cases of men employed and compensated by the Federal authorities which, as Commonwealth instrumentalities, would not be covered by the State Workmen's Compensation Act; and that, finally, there are cases in which compensation has been paid, but with respect to which there has been an illegal neglect to furnish returns.† The local Departmental view is supported by official opinions in England: Dr. T. M. Legge, when giving evidence before the Departmental Committees on the use of lead in painting, said: "The number who get compensation or who apply for compensation for lead-poisoning as house-painters is not sufficiently large to be a fair criterion of the amount of lead-poisoning occurring amongst them."‡

The Experience of Insurers.

The experience of the Treasury Insurance Board which controls an arrangement whereunder the Government insures its various departments against compensation risks, may be briefly referred to. It has received since the commencement of the Workmen's Compensation Act six claims in respect of lead-poisoning, all of them made by painters.§

When the Workmen's Compensation Act, 1916, was passed, the Accident Underwriters' Association of New South Wales, which had been in existence since 1909, met to consider what rates were appropriate to the new risks created by the Act. Painters had from 1910 to 1915 been insured at the rate of 30s. per cent. of the wages paid to them. In 1915 the rate was reduced to 25s. 6d. as part of a general reduction of rates under the Workmen's Compensation tariff. In 1917, after the new Act became operative, the rate for painters was still further reduced to 20s. That rate stood until the end of 1920, when the Workmen's Compensation Amendment Act increased the monetary compensations by 50 per cent., and the rate went up by 33½ per cent., i.e., from 20s. to 26s. 6d. The lastmentioned rate is the current rate. The different companies keep records of their own experience, and meet as an Underwriters' Association to discuss and influence rates in accordance with alterations in the insurance law and with what they have learnt from their individual experience. The effect of these operations would give the impression that the companies do not consider their experience to be adverse, and regard the painters' risk as merely normal.|| Painters and paperhangers are, indeed, conceded by the companies a lower rate than the other employees of a builder. The main factor determining rates is the experience of risks, i.e., the hazard incidental to the work; but the number of employees in the industry, i.e., the wage range or amount of wages likely to be involved is a factor which influences ratings.¶ Individual members of the Underwriters' Association did not consider that the painters' liability was increased at all by the inclusion of lead-poisoning in the schedule of the Act of 1916, and their experience under that Act has not

* See *Chippendale v. High Explosives Ltd.*, of Lytham, 1918, 120 L.T. 9.

† Evidence of Mr. R. J. Perdriau, p. 378.

‡ Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c., Vol. IV (d. 632), p. 7.

§ Evidence of Mr. G. H. Sponce, p. 122.

|| Evidence of Mr. F. W. Wilson, p. 208.

¶ *Ibid.*, p. 212.

shown that lead-poisoning has increased the risk or liability.* The whole experience of an important company shows that the general risks in the case of painters are rather less than the general risks of all other people employed in the building trades.

A company which was not a member of the Accident Underwriters' Association, and which had an extensive experience of factory risks, stated that its experience with paint manufacturers had been so good that in seven years it had not been called upon to meet one claim for compensation for lead-poisoning arising out of that industry; and that the only compensation paid had been claimed by employees in the printing, rubber goods, and accumulator industries.†

The rates charged in respect of men engaged in the work of lead-corroding by the insurance companies are 12s. per cent. and 22s. 6d. per cent. of wages paid in the cases of the only two businesses in operation.‡

The Experience of State and Federal Establishments.

The Medical Officer of the Metropolitan Board of Water Supply and Sewerage stated in evidence that the average number for four or five years past of the employees of the Board was 2,303, and that on the 1st April last this labour force included twenty plumbers, five painters, and a group of twenty-one men employed in scraping, cleaning, chipping, painting, lime-washing, and cement-washing metal work in connection with trunk mains, viaducts, bridges, reservoirs, and tanks. The Metropolitan Board also intermittently employs special gangs of painters. It was the practice of the Board until two years ago to use mainly paints with a carbonate of lead base. Zinc white has, however, been extensively used by the Board in the last two years.§ In the whole of his experience as the Board's Medical Officer the witness had never seen a certain case of lead-poisoning. The witness had not noticed any special liability to minor ailments on the part of painters and those associated with painters' work.||

The experience of the State Railway Department has been but little less favourable. The records of the Railway Service Superannuation Board do not show any cases of illness due to the effects of lead, although the Railway and Tramway Service comprises 50,000 employees, 40,000 of whom would be industrial operatives. There are some 400 coach-painters and house-painters in the Service, and their numbers have not varied greatly for a decade. No claim has been made under the Workmen's Compensation Act, 1916, and, apart from the superannuation scheme, for compensation for death or permanent incapacity due to lead-poisoning.¶ In a period of seventeen months, i.e., from January, 1920, to May, 1921, 16,700 medical certificates accounting for absences from duty for a period of more than three days were forwarded to the Medical Officer to the Railway Commissioners, and of that number three only indicated lead-poisoning. One of the patients was a fletcher, another a battery mechanic in the electrical branch, and the third was a

* Evidence of Mr. C. M. Montefiore, p. 370.

† Evidence of Mr. N. R. Weldon, pp. 149-153.

‡ Exhibit No. 19; evidence of A. B. Sievier, p. 516; evidence of J. K. Morice, p. 503.

§ Evidence of Mr. G. W. Bagnell, pp. 186-189.

|| Evidence of Dr. E. S. Stokes, pp. 145-149.

¶ Evidence of Mr. J. F. McEvoy, pp. 162-164, and pp. 173-175.

painter. This experience is, it is stated, probably typical of the experience of the past nine years; but, seeing that no monetary claims were involved, the adequacy of the diagnosis of lead-poisoning so found was not considered or admitted. The Assistant Medical Officer stated that he had not, in the nine years, one case of suggested lead-poisoning that could be regarded as definite in its features. It is the practice of the Railway Department to have all applicants for employment examined by the Medical Officers before they are taken on to the permanent staff, and the Assistant Medical Officer was able to say that no painters had, in his experience, been refused employment as suffering from lead-poisoning.* The Railway Commissioners ordinarily use about 140 tons of white-lead per annum, mainly in the form of paint base, and 50 tons of mixed paints which contain lead in varying quantities, and zinc oxide to the extent of about 30 per cent.† No serious attempt has been made to substitute zinc oxide for white-lead, except for inside work, in railway and tramway painting, but a substitute has been found for the roofs of carriages, and a considerable proportion of the tramway work takes the form of enamelling upon a lead priming. The painters and painters' labourers are, nevertheless, in the more important workshops, handling lead paints continuously.‡ In one shop in three years five men from a working force of about 260 painters, painters' assistants, and apprentices had reported to the foreman coach-painter as suffering from the effects of lead.§

In the Railway Service a man may be absent for sufficient cause for any time up to three days without furnishing a medical certificate assigning some form of illness as the cause of his absence. But as between himself and his foreman notice is taken of absences of all kinds, and a man is called to account for each day of absence. If illness is then given as the cause of his absence it need not be certified to by a medical practitioner, but the explanation is recorded on a lost-time sheet.|| Medical certificates are, as evidence of *bona-fides*, furnished and accepted in respect of absences of less than three days' duration.¶ There are, then, two kinds of record in existence: one showing all absences from all causes; and a second showing absences from sickness medically certified to. The Board of Trade, with the assistance of the timekeeper of the Carriage and Waggon Department, Eveleigh, the staff and time clerk of the Permanent Way Department, Metropolitan Division, and the principal clerk of the Randwick Tramway Workshops, investigated the records showing absences from the various shops on account of sickness. The Board had asked the Railway Commissioners for:—

- (a) a table showing the morbidity of painters for a period of two and a half years, as compared with certain other groups of employees, and the whole of the employees in the three shops;
- (b) a comparative table for seven equidistant fortnightly periods during the two and a half years, comparing the number of days worked by the average painter with another section of the employees, and the whole of the employees.

* Evidence of Dr. T. L. O'Reilly, pp. 176-182.

† Evidence of Mr. E. A. Nelson and R. H. Walton, pp. 202-207.

‡ Evidence of Mr. A. G. Stainton, p. 217; evidence of Mr. F. Pardey, p. 229; evidence of Mr. N. Knudson, p. 282.

§ Evidence of Mr. A. G. Stainton, p. 218.

|| *Ib.* p. 217.

¶ Evidence of Mr. W. J. Hayward, p. 291.

The Board received, in response to its request, the matter contained in Exhibits Nos. 24, 25, and 26. The first of these exhibits treats of the conditions at the carriage and waggon shops at Eveleigh. The average time lost through sickness per man of a group of 218 painters, paint-mixers, painters' assistants, and apprentice painters in that shop from the 1st July, 1918, to 30th June, 1921 (excluding Sundays) was 23·358 days. The average time lost through sickness per man of a group of 304 car-builders, car-builders' assistants, and apprentice car-builders in the shop in the same period, and excluding Sundays, was 16·148 days. The average time lost through sickness per man of a group of 1,208 men constituting the total staff of the Carriage and Waggon Department in the same period, and excluding Sundays, was 20·657.*

The second of the series of exhibits treats of the conditions of the Permanent Way (Metropolitan Division) staff. The average time lost through sickness per man of a group of thirty-four painters and brush-hands on that staff from the 1st July, 1918, to the 30th June, 1921 (excluding Sundays), was 15·9 days. The average time lost through sickness per man of a group of 126 carpenters and carpenters' labourers on that staff in the same period, and excluding Sundays, was 14·5 days. The average time lost through sickness per man of a group of 552 men, constituting the total staff, in the same period, and excluding Sundays, was 17·3 days.†

The third of this series of exhibits treats of the conditions at the Randwick Tramway Workshops. Lead is not as generally used at Randwick as it is at the railway workshops. Nevertheless it is in substantial use there. In the last twelve months the shops had used 470 gallons of enamel, and in the last eighteen months 274 cwt. of lead. In the last six months 120 cwt. of lead had been used there.‡ The average time lost through sickness per man of a group of 43 painters, painters' assistants, and painters' apprentices in that shop from the 1st July, 1918, to the 30th June, 1921 (excluding Sundays and holidays), was 14·26 days in times of over 3 days and under 1 month, and was 9·46 days in times of 1 month and over. The average time lost through sickness per man of a group of 60 car-builders, their assistants and apprentices, in the shop in the same period, excluding Sundays and holidays, was 8·73 days in times of over 3 days and under 1 month, and was 5·9 days in times of 1 month and over. The average time lost through sickness per man of a group of 65 electrical mechanics, their labourers and apprentices, was 9·52 days in times of over 3 days and under 1 month, and 13·05 days in times of 1 month and over. The average time lost through sickness of a group of 62 pitmen and their assistants was 14·62 days in times of over 3 days and under 1 month, and 1·40 days in times of 1 month and over. The average time lost through sickness of a group of 909 persons constituting the total staff of the workshop was 9·01 days in times of over 3 days and under 1 month, and 6·35 days in times of one month and over. The pitmen referred to work in pits of about the height of a man, and underneath the cars. The pits, being draughty, the pitmen are prone to suffer from chills. The electrical mechanics and their assistants would, in running cables underneath the cars, also work in pits.§

* Evidence of Mr. W. J. Hayward, pp. 547-554.

† Evidence of Mr. G. W. Wray, p. 554-559.

‡ Evidence of Mr. F. Pardey, p. 227.

§ Evidence of Mr. C. J. Griffiths, pp. 559-61.

These computations, of course, are the most limited of excursions into the field of industrial statistics, and do not tend to throw any light upon the problem of the incidence of lead-poisoning. But for what they are worth, they do indicate that the health conditions of the painter group are less favourable, in the main, than those of the other groups with which it has been compared. Group environment is responsible for group conditions of health, just as personal environment causes personal conditions of health; but as group environment is the direct creation of an industry or of social organisation, the responsibility stands out more clearly in the case of the group than in the case of the individual. Moreover, the complicating factor of individual predisposition is absent in the case of the group, and what would be inconclusive in the individual case stands unaffected in value in the case of the group. The statistics of absenteeism acquire, therefore, a good deal of significance if it be assumed merely that they reflect the effect of the whole of the sinister conditions of the painting trade, and not only the effects of one particular element in those conditions. The import of the computations is, then, to alter, to a material degree, the colour of railway experience. It is by no means so favourable as it is apparently considered to be by the Railway Medical Officer, and there emerges from the computations a suggestion that much valuable information might be acquired from a clinical survey of certain groups of employees in the railway workshops.

Experience at the Naval Dockyard at Cockatoo Island, Sydney, is more difficult to interpret. In the period of eighteen months 250 tons of paint material were used, including 50 tons of white-lead, 20 tons of red-lead, 25 tons of zinc-white and white-lead in combination, and 10 tons of zinc-white. The painters and dockers do outboard work, except where enamel is used, the bilges, double bottoms, bunkers, and the mast yards and funnels and topside of the ships, and generally all engine-rooms on the floor line, boiler-rooms, holds, seamen's and firemen's quarters, and stores, except provision stores. The greater part of the inboard work which is done by the professional painters is done in enamels, the high grades of which are lead-free, but the professional painters would, for the greater portion of their time, be handling lead paints. The exposure of the painter and docker to lead risks is equal, on the whole, to that of the painter, but the effect of those risks is probably greater in the case of the painter and docker because of his want of knowledge and skill in the handling of the dangerous material. The men are paraded at intervals for medical inspection.* Exhibit No. 17 shows the absenteeism of various classes of employees over a period of three years, but for at least nine months of that time no professional painters were employed. The exhibit also gives the disease causes of time lost by professional painters, and painters and dockers in a period of eighteen months, for nine months of which painters were not employed. Significantly enough, the diseases, after eliminating epidemic complaints such as catarrh and influenza, are preponderantly diseases of the intestines, gastritis, rheumatism, bronchitis, and diseases of the genito-urinary system. Superficially considered, the exhibit shows that the health conditions of the professional painters are the most favourable; but if the two groups of professional painters and painters and dockers be combined

* Evidence of Mr. J. M. Shearman, pp. 305-319.

on the basis of exposure to lead, and some proper allowance made for the non-employment of painters over one-fourth of the period, it will be seen that the absentee rate of the combined group is more than double that of any other group. The figures were, however, presented to the Board in such a way that they could not be analysed, and the method of their derivation could not be checked. It is extremely doubtful, therefore, if they should be accorded either positive or negative value in relation to the issues before the Board.* The evidence of the Naval Medical Officer attached to the Dockyard from the 15th November, 1919, to the 30th June, 1921, was that there was only one typical case of lead-poisoning in the period, and that he had not seen there what he regarded as a typical blue line.† But he also stated that he would not base his diagnosis of lead-poisoning on mere clinical evidence, and required demonstration, as by chemical analysis of the urine, of the presence of lead in the system at the time of his examination.‡ In six or eight cases of suspicion of lead-poisoning a negative result had followed the chemical test applied, and the diagnosis had been against lead-poisoning.§

The Experience of Lead Corroders and Paint Manufacturers.

Messrs. Lewis Berger and Sons (Australia), Limited, carry on, at Sydney, the operations of corroders of white-lead and manufacturers of paints and varnishes. Their output of white-lead in the form of carbonate is from 7,000 to 7,500 tons per annum. They employ from 370 to 400 men altogether, and from 70 to 100 men in the lead departments. A weekly medical inspection is made of the employees in the lead departments. The company claims to have had one certain case and one doubtful case of lead-poisoning, and no case of Bright's disease or phthisis amongst its employees so examined since the establishment of its local enterprise in 1917.|| The company's medical officer thinks that because of the medical attention they receive, and the insistence upon hygienic practices in their case, the men who are exposed to lead risks are less likely to suffer from minor ailments than the employees of other classes.¶

The British-Australian Lead Manufacturers Proprietary, Limited, is a company in which all the British lead-corroders but one are interested. The company is but inaugurating its business. It contemplates an early output of 2,300 tons of white-lead, and an ultimate output of 5,000 tons per annum. The company will, with the development of trade, erect paint works and manufacture all classes of paints, dry colours, kalsomines, colours ground in oil and varnish. At present the company employs twenty-eight men, and has so far had no experience of lead-poisoning.**

The Experience of the Trades.

The painting trade is associated with the building industry, with sign-making and advertising, with ship-building and docking, and with the general manufacturing industries. The employees are organised into three

* See Evidence of J. M. Shearman, p. 462.

† Evidence of Lieutenant-Commander W. E. Roberts, M.R.C.S. and L.R.C.P., p. 357.

‡ *Ib.* p. 363.

§ *Ib.* p. 364.

|| Evidence of Mr. H. B. Sevier, p. 468.

¶ Evidence of Dr. L. H. Rogers, p. 512.

** Evidence of Mr. J. K. Morrice, pp. 502-5.

trade-unions, the Operative Painters and Decorators' Union, which embraces house-painters and professional ship-painters, and has a membership of 1,500;* the Ship Painters and Dockers' Union, with a membership of 2,632;† and the Coachmakers' Society, which embraces coach-painters and their assistants to the number of 500.‡ Some of the employers in the trade, *i.e.*, those whose operations are, in the main, confined to painting contracts, are organised as an Association of Master Painters, Decorators, and Sign-writers of Australia, and as master painters' associations in the various States. Other employers are associated in master builders' organisations and general employers' federations. At the census of 1911 there were 14,399 house-painters, paper-hangers, glaziers, and signwriters in the Commonwealth, and approximately 45 per cent. of this population was to be found within the State of New South Wales. A considerable proportion of the operative painters are unorganised from the trade-union standpoint.

In house-painting work lead is so generally employed that the painter may be regarded as habitually associated with its use. In factory painting work the use of lead is also general. In the motor-body trade the paint is all paint with a lead base.§ The work of rubbing-down, sand-papering, and bringing surfaces up to a high finish in lead paints is, perhaps, particularly characteristic of some sections of the factory trade. Such work is done upon coaches, waggons, carriages, and motor-cars. Structural and other iron work, boiler work, and agricultural and other implements are protected with lead paints.

No particular attention appears to have been paid to the hygienic aspects of the composition and use of paints by the employers' associations in the trade.||

Paints ordinarily comprise a metallic or mineral base, a vehicle, pigments or colouring agencies and ingredients which have the effect of thinning and causing the mixture to dry when it is spread over the surface to be coated. In paints very generally regarded as of the highest quality the base is hydrated carbonate of lead, the vehicle is linseed oil, and the other ingredients turpentine and one of the many dryers of metallic or other derivation. Oxide of zinc is very frequently used in combination with the carbonate of lead for a paint base; and it may be used as the sole base. Basic lead sulphate, again, may displace carbonate of lead wholly or partly as the paint base in standard high grades of paint commonly in use. Oxide of lead is most favoured as the paint base where metals are to be covered. Barytes is another metallic base either in combination with lead or zinc. The mineral ingredients vary, but carbonate of lime appears to be of more general adoption than other substances. Petroleum spirits are apt to be largely combined in the cheaper grades of paint. Varnish is incorporated with paints partly to produce a glossy surface. The flat-finish paints are largely leadless, but contain a high proportion of volatile substances. The amount of turpentine or benzine that is mixed with paints varies according

* Evidence of Mr. James O'Brien, p. 12.

† Report of Registrar of Friendly Societies for 1919.

‡ Evidence of Mr. John Flanagan, p. 325.

§ *Ib.* p. 333.

|| Evidence of Mr. James Perrott, pp. 427-8; Evidence of Mr. William Mason, p. 444.

to the effect to be produced. The dryers are compounded ordinarily of linseed oil, manganese dioxide, or oxides of lead and benzine. Paint and varnish solvents in frequent use for constructive and destructive purposes are benzole, acetone, and methylated spirits. Sizes which are in constant use as priming for painting and decorating purposes may be made of oil paints, glues, and animal fats or vegetable gums with turpentine and benzine. Paint cannot be satisfactorily mixed or manufactured without turpentine.* It improves the spreading and drying qualities of paint, and varnishes as well as paints contain turpentine. Quick-drying paints depend upon the combination in the paint mixture of a larger proportion of the volatile substances which have toxic effects upon the painter.

Rubbing down is regarded as a necessary process in producing a fine finish. The process may be either a wet or a dry process. It is regarded somewhat differently by the house-painting and waggon-painting branches of the trade. In the waggon-building industry rubbing down is done in all cases with the pumice stone, or with a brick of special composition called a "3 x 2 stone," and it is a wet process used after the surface to be painted is filled or refilled. After every coat of paint until the finishing coat is applied the surface is smoothed down and freed of nibs with sandpaper. This is a dry process. In the house-painting trade where fine finishes are required, the wet and dry processes are both used, but are generally termed rubbing down. In giving evidence before the Board, the representative of the Coachmakers' Union said: "It is sand-papering all the way through the coach trade. It is a matter of chasing dirt with sandpaper from the time you commence a job until you finish, or until you get the glaze on. You sandpaper first in a motor body after you have rubbed down . . . on old paint with the pumice stone, the water, and, of course, the sponge. You put your first coat of colour on and commence to sandpaper, and you sandpaper every coat. The difference in that trade and the carriage-building trade is this: that you do not fill up on a metal panel, a re-paint job. All the indentations are plastered over with dry white-lead, which is made up of a little gold size and a good drop of turps put in to make it dry quickly. It is plastered over that and square-knifed. It would remind you of a plasterer at work. When that is thoroughly done the painter gets his sandpaper and rubs the rest of it and that dust flies in all directions."†

In house-painting a well-finished interior job will have several coats of white-lead paint, and all but the last are sandpapered. Even where zinc paints are used as the finishing coat, the filling and priming and the undercoats are frequently done with paint having a carbonate of lead base. There is now, however, a tendency to reduce the rubbing down, and to accept an inferior finish. With old work there may be first of all a burning-off with its fumes and odours, to be followed by a rubbing down of the surface with glass-paper; or a preliminary rubbing down only. With new interior work there would be a priming or first coat, which would be allowed two or three days to harden before the second coat is applied. Then the painter applies his glass-paper in order to take off the nibs. The succeeding coats are put on and rubbed down according to the quality demanded in the work. When

* Evidence of Mr. H. B. Sevier, p. 465.

† Evidence of Mr. John Flanagan, pp. 326-333.

a wall is to be flat-painted the painter gives it three coats of an oil finish and one coat of the flat paint. The last coat of oil would not be rubbed at all. On the surfaces of doors and similar woodwork a higher finish is usually required. Pumice stone is then used in the wet process in order to procure a smooth and hard surface.*

Ship-painting reflects many of the features of house-painting so far as officers', saloon, and passenger accommodation is concerned. The work is, however, of higher grade in certain respects, and much more enamel having a zinc base is used upon the work of high finish. The foundation work for the high-grade enamel would be of lead. There is very little varnishing done. When re-enamelling has to be done, the job is first stoned-down in water. The work is then got up with an oil colour, and rubbed down with sandpaper. It is then built up from the foundation so laid. Burning off is a process applicable to lead paints. It is followed usually by dry sand-papering. The operative may be called upon to work in confined spaces whatever the grade of work may be. Some of the second-grade and rough work involving the use of lead paints may have to be done under very uncomfortable conditions as between the inner and outer skins of the ship where the body must be in contact with the material.†

The master painters and the subordinate employers of painters who appeared before the Board invariably stated that the effect of their observations was that the health risk of the painter's occupation was insignificant, or at least no greater than that incurred in any other occupation. One master painter with thirty-three years' experience of the trade had seen but one man with lead-poisoning, and that some twenty-five years ago.‡ Another with forty years' experience at the trade had never had a single case of lead-poisoning, and had developed a rather favourable impression of the effect of the occupation upon health.§ He could not remember any absenteeism for reasons other than the business concerns of his employees.¶ A third said that he had never known or seen a case excepting for the disclosures made during the course of the Board's inquiry.¶

On the other hand, the representatives of employees' organisations who gave evidence as to the prevalence of lead-poisoning amongst painters averred that there was a feeling of great alarm in union circles with respect to the disease and its consequences, and that a *bona-fide* inquiry or census of the opinions of individual members of the Operative Painters and Decorators' Union established the fact. This union, in October, 1918, appointed a committee of its members to report to the union upon the question of the dangers of lead and the prohibition of white-lead as a paint base. The step was taken because of the belief of the majority of the members that lead as used in paints was poisonous and that substitutes for it were desirable. Again, in the present year, another committee was appointed by

* Evidence of Mr. E. T. P. Grice, pp. 40-112.

† Evidence of Mr. J. M. Shearman, pp. 305-323.

‡ Evidence of Mr. E. T. P. Grice, p. 404.

§ Evidence of Mr. James Perrott, p. 419.

¶ *Id.*, p. 415.

¶ Evidence of Mr. William Mason, p. 443.

the union to collect information with regard to lead in order that its dangers as an industrial poison might be brought to the attention of the Government of the State. The report of the committee of 1918, which is attached to the evidence of Mr. James O'Brien, the secretary of the union, as Exhibit No. 7, deals principally with experience and opinion abroad, and is a document of some educational value from the operatives' standpoint. The union spokesman expressed the belief of the committee that lead-poisoning was gravely prevalent in New South Wales, and said that it existed to such an extent as would justify, if not prohibition, at least substantial restriction of the use of white-lead in paints. The Board was compelled, for its own advantage, to emphasise the unscientific nature of some of the information tendered to it on behalf of the unions. Much of the evidence offered tended merely to show a state of mind rather than a physiological condition on the part of employees, and the Board had to point to the gulf that was fixed between the position of those who affirmed such a state of mind, and that of one who would demonstrate physical suffering from the effects of lead.

The evidence of both master painters and employees was open to the objection that it indicated nothing more than the effect of impressions and an inclination on the part of some of those who gave it to force an element of partisan colour into an involved and obscure picture. Between these influences a non-technical but thorough method of inquiry was pursued as closely as was practicable in the circumstances.

At the second sitting in the inquiry the Board mentioned that it might be necessary to have recourse to an independent examination by a Medical Commission of persons exposed to the risk of lead-poisoning in order to ascertain the health conditios of the group;* and at its third sitting it reverted to the subject.† The employees' advocate somewhat later in the course of the third sitting suggested that the parties should agree to the constitution of a Medical Committee for the purpose of making a clinical survey with the assistance of the Operatives' Union.‡ Counsel representing the lead-mining, lead-corroding, and other employers' interests regarded the proposal as well worthy of very careful consideration and debatable only in connection with the extent to which it could be applied, but he preferred not to accept it until he had discussed it with his expert advisers.§ On the 29th June, 1921, the Board drew the attention of parties before it to the report of a "Clinical study of the frequency of lead, turpentine, and benzine poisoning in 402 painters," published at page 226 of the March, 1919, number of *The Monthly Labour Review* of the United States Department of Labour, Bureau of Labour Statistics. On the 20th July the President of the Board addressed to the Railway Commissioners a letter in the following terms:—

"The Board of Trade is now, in pursuance of a Ministerial reference, holding an inquiry upon the question whether white-lead as used in the painting industry is so injurious to painters and other workers engaged in such industry that its use in paints or pigments should be regulated, restricted, or prohibited. The scope of the inquiry is to be wide enough to enable the Board to report upon all incidental matters, such as may

* See Evidence, pp. 14-16.

† See Evidence, p. 87.

‡ See Evidence, p. 89.

§ See Evidence, p. 91.

have to be considered by the Government when answering proposals for the prohibition by international agreement of the use of white-lead in paint, which have reached it from the third session of the International Labour Conference held in Geneva in April last.

"The Board has already had some valuable assistance from various officers of your Department, and hopes that because of the range and special character of your experience, as a great employer in this and other industries, you will be able to co-operate with it and the Department of Public Health in conducting a clinical study of the existing state of health of the painters and painters' labourers now employed in your workshops in the metropolis.

"The Board's proposal is that three medical practitioners, one being the Railway Medical Officer, the second an officer of the Department of Public Health, and the third a physician and scientist of repute to be nominated by parties appearing before the Board in the inquiry, should be authorised to make the study, and that the expenses of the work should be shared by the three interests and the Board. These expenses can only be estimated by the professional gentlemen to be concerned, but should not be excessive, because the undertaking, if mutually agreed upon, might be concluded within, say, three weeks. The results of a study so made should have extraordinary authority, and enable the Board and the Government to speak with comparative certainty upon the questions at issue.

"There is undoubtedly considerable unease or misgiving in industrial circles with respect to what are rightly or wrongly believed to be the effects of the use of white-leads in paints, and a great deal of advantage should accrue to all concerned from an authoritative moderation of contention in this regard.

"The Board trusts that it will have your favourable and early consideration of this communication."

On the 22nd July the President of the Board received from the Railway Commissioners a letter which indicated that consideration would be given promptly to the proposals made by him to them; and on the 28th July the Commissioners wrote to the President stating:

"With reference to your letter of the 20th instant indicating that it is the desire of the Board of Trade to have a clinical study made of the health of painters and others employed in this Department, I have to inform you that the Commissioners have agreed to the suggestions contained in your communication, and directions will be given accordingly."

On the 3rd August the Board informed the parties of the terms of the letter of the 20th July and explained the intentions underlying that letter. The employees' advocate then described the proposal as the real and only solution of the problem of the effects of lead in New South Wales; but counsel indicated that although in the early stages of the inquiry he and his clients looked very favourably upon the suggestion, later, viewing it merely on its merits, they considered it was a most impracticable thing because they would have to examine into every case. The Board then urged that the

proposal should be reconsidered as likely to provide something in the nature of a combined and scientifically based opinion upon the question of the incidence of the disease under certain conditions, and thereby a means of putting the whole of the evidence into a more or less correct perspective. Counsel then undertook to reconfer with his clients upon the proposal. On the 15th August last, and after the last of the public sittings of the Board, counsel in person, and in the presence of the representative of the unions, informed the Board that the interests that he represented would not assent to the Board's proposals for the clinical survey of the health of railway painters.

The evidence from administrative and trade experience is conflicting and unsatisfactory, but when tested, even by the incomplete checks which the Board was in the time available able to apply to it, it tends to support the conclusions that are pointed to by the evidence from the public vital statistics. The obscurity in which the situation, looked at from the industrial standpoint, is wrapped, might have been greatly illuminated by the proposed survey. Dr. T. M. Legge in giving evidence before the Departmental Committee on the use of lead in painting emphasised the value that additions to the general statistics so procured would have.* It is, the Board thinks, extremely regrettable that the mine-owners, manufacturers, and other employers represented before the Board would not adopt the proposals.

* Reports of Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, &c. Cmd. 632, p. 2.

CHAPTER VI.

GENERAL CONCLUSIONS.

The Board is able to pursue its inquiry to a conclusion without settling for its purposes the vexed question whether there are efficient and commercially available substitutes for white-lead as a paint base. If it were technically possible to replace white-lead in painting by efficient substitutes there would still be reasons why a draft convention prohibiting the use of white-lead in painting should not be submitted in the name of this State to the Geneva Conference. The question of the replacement of white-lead remains at issue. The evidence put before the Board in this relation by the various witnesses was, of course, amplified by that taken in the course of the inquiries by the English Departmental Committees.* All of it leaves the matters of substitution and supply in considerable doubt, particularly where a range of colours is contemplated. The terms of the decision of the Departmental Committee appointed to investigate the danger attendant on the use of paints containing lead in the painting of buildings, and the failure of the British Government to act upon that decision afford strong criticism of the postulate of the Geneva questionnaire. The complete prohibition of the use of lead in house painting was not recommended by that Committee, because, in the Committee's opinion, it was necessary to permit the use of a certain amount of colouring material containing lead, as well as a very minute quantity of lead in the composition of driers, and it was expedient to admit of the use of zinc oxide made by the direct process. But the importation, sale, or use of any paint material should, the Committee thought, be restricted subject to certain exceptions to be licensed to that which contained not more than 5 per cent. of its dry weight of a soluble lead compound.†

If the Board's view as to the co-efficiency of lead and zinc as causes of the tuberculosis of painters be correct, then a paint base containing 5 per cent. of carbonate of lead, or 20 per cent. of sulphate of lead, with a residue of zinc oxide, might be the cause of evils which would again give occasion for a convention of the nations.

Lead, as used in the painting industry, that is, lead principally in the form of a basic carbonate, or white-lead, is a substantial cause of injury and death to painters and other workmen engaged in the painting industry. As a cause of death lead is more effective in this industry than in any other occupation, but its toll of deaths, as recorded, does not by any means indicate its deleterious influence or destructive power.

In England the notification of every case of lead-poisoning occurring in a factory or workshop was made compulsory by the Factory and Workshop Act, 1895, and from 1900 substantially reliable statistics upon the subject

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Paints and Lead Compounds, &c., Cmd. 630, Cmd. 631, Cmd. 632, Cd. 7,882.

† Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Paints, &c. (Cd. 7882), p. 101-2.

of the effect of lead upon the health of factory employees have been available. Dealing with the statistics from 1900 to 1913 the Departmental Committee appointed to investigate the danger attendant on the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages, found the rate of cases of lead-poisoning among those in contact with lead to be 2.50 per 1,000 per annum, and the average death-rate due to lead-poisoning .149 per 1,000 per annum, but declared that these attack and death-rates, having relation to all persons handling lead to any minor extent, did not afford a true indication of the danger to which the workers who were fully employed on materials containing lead were exposed.* The allied Committee, which was concerned with the use of paints containing lead in the painting of buildings, had no such reliable information with regard to non-fatal cases, but by approximate estimates it suggested that the attack rate from lead-poisoning with operative painters was 4.8 per 1,000. The mortality rate of operative painters was found by this Committee to be .195 per 1,000 per annum. There was an actual average of twenty-nine deaths, and an estimated average of 720 cases per annum with a population of 150,000 in the group of operative painters. These figures were regarded as of much significance. Both Committees found that the evils disclosed were substantial and sufficiently grave to necessitate some action.† In America similarly the recorded mortality for lead-poisoning amongst painters is comparatively low, but its significance is not regarded as small on that account. "It is rather," says Dr. Hoffman, "because of complications resulting from gradual lead absorption as a factor in other diseases including pulmonary tuberculosis than as a direct cause of death that lead-poisoning assumes importance in occupational or industrial hygiene."‡

The average number of deaths of painters in New South Wales from lead-poisoning may not be impressive,§ but the pure death-rate is strictly comparable with English experience, and the complication death-rate, while unknown, is at least substantial. The attack rate is another matter. It is not possible to derive an attack rate of painters on the basis of factory experience in New South Wales, but it is perhaps reasonable to make certain inferences in relation to painters from the experience of the Technical Commission of Inquiry at Broken Hill. Nine per cent. of the 3,968 persons included in the Broken Hill survey were found to show arterio-renal symptoms which might have been due to lead absorbed as the result of exposure mainly to the dust of sulphide and oxide ores.|| This mixed dust must have been much less soluble, and therefore much less noxious, than the carbonate of lead dust to which painters are exposed. In fact the vital statistics show that for every nineteen miners who die from lead-poisoning in a series of years there are twenty-two painters who die from the same cause. If the dusts were equally noxious, and the exposure comparable, the

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, etc. (Cmd. 630), p. 27.

† See Report of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Paints, etc. (Cd. 7,882), p. 79; and Report of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Lead Compounds, etc. (Cmd. 630), p. 27.

‡ "Mortality from Respiratory Diseases in Dusty Trades," F. L. Hoffman, Bull. No. 231 of U.S. Bureau of Labour Statistics, 1918, p. 277.

§ See evidence of Professor Chapman, p. 605.

|| See p. xxi of this Report.

same consequences might be expected to arise in each case; and a rate of prevalence of lead-poisoning of 9 per cent. in the case of painters might thus be derived. But the uncertain factor of the relative exposure need not be given undue weight, for the vital statistics show that whatever the degree of exposure in the case of the painter, the joint effects of exposure and toxicity of the carbonate of lead dust make his position distinctly more sinister than that of the miner. The rate of prevalence of arterio-renal lead-poisoning amongst painters would thus be in the neighbourhood of 11 per cent. The Broken Hill Survey indicated that there were 113 who showed symptoms not arterio-renal that might have been due to lead, and 254 who exhibited signs of pneumoconiosis and tuberculosis. If all of these persons be regarded as the subjects of lead-poisoning, and if the rate of prevalence amongst painters be thus derived at 22 per cent., the conditions of the New South Wales painters would be only half as bad as those of the 402 actively-employed New York painters who were examined by Dr. Louis I. Harris, the Director of the Bureau of Preventible Diseases, New York City Department of Health, in 1917-18.*

In the absence of morbidity statistics it is only possible to base conjectures as to the prevalent degree of sickness from lead-poisoning on the mortality rates. Mortality statistics are of little value in a study of lead-poisoning. "Rarely," says Dr. Alice Hamilton, "does a painter die of uncomplicated and typical lead-poisoning. The immediate cause of death is usually some chronic lesion which has been set up by the slow absorption of lead, but the physician, in making out his death certificate, gives the disease which is, strictly speaking, a secondary cause of death, as the principal cause, and the underlying chronic plumbism is either omitted or mentioned as a contributory cause."† Interpreting, then, the death statistics for lead-poisoning and for the allied group of diseases as the Board considers they ought to be interpreted, the conclusion arrived at is that the health conditions of the painting industry in New South Wales are as prejudicial as they have been found to be in England, and present real evils which are preventable and call for determined action in the public interest.

The Board, having arrived at the conclusion indicated, has carefully considered what should be the nature of the action to be taken in the public interest. Immediate prohibition or restriction of the use of white-lead is, the Board finds, not the appropriate remedy for the evils disclosed. There is, perhaps, no more reason at the moment for the prohibition of the use of white-lead in paints than there is for the prohibition of lead-mining at Broken Hill or elsewhere in the State, and, indirectly, for the prohibition of the mining of precious metals that are to be found in geological association with lead bodies. Lead-poisoning, being a preventable disease, as the medical witnesses and other authorities available to the Board all agree, it would indeed be a desperate situation if the only means of prevention were the abolition of the use of lead.

Care on the part of employees themselves is a necessary condition of the prevention of lead-poisoning. The employee cannot, perhaps, greatly

* See "Clinical Study of Frequency of Lead, Turpentine, and Benzene Poisoning in 402 Painters," *Archives of Internal Medicine*, August, 1918, pp. 129-156.

† "Hygiene of the Painter's Trade," Alice Hamilton, M.A., M.D., *Bulletin No. 120 of U.S. Bureau of Labour Statistics*, p. 48.

influence the character of the atmosphere in which his work is performed, but he can avoid the unnecessary raising of dust, he can avoid the splashing of lead material to a great extent, and he can refrain from eating or smoking with unwashed hands. Personal hygiene is a matter of supreme importance with those who are exposed to lead risks. The surface of the body, the nails, the mouth, and the teeth, ought to be kept clean for reasons of self-respect, but must be so kept by the lead-worker if he desires to preserve normal health. Cleanliness in clothing and working overalls, a reasonably arranged dietary, and the avoidance of intemperance, all help to strengthen the defences against lead-poisoning. Slovenliness and carelessness are contributory causes of lead-poisoning, and they afford no reasons at all for the prohibition of the use of lead by painters.

Care on the part of employers, also, is a necessary condition of the prevention of lead-poisoning. About 2 milligrammes or 0.002 grammes of lead is the lowest daily dose which, inhaled as fume or dust, may, in the course of years, set up chronic lead-poisoning. Probably if the air breathed contained less than five milligrammes per 10 cubic metres of air, cases of encephalopathy would never, and cases of colic would very rarely, occur.* As this is a quite practicable level of the dust arising from any process amenable to exhaust ventilation, employers working under factory conditions can and should be compelled to maintain it. Accumulations of dust under foot are wholly unnecessary; floors should be impervious and smooth. Factory ventilation should be designed to reduce dust risks, and be properly controlled. Dust, when exhausted or otherwise concentrated, must be properly collected and disposed of. Wet methods should replace dry methods of preparing work. The health of the employees should be supervised in an effective manner, periodical medical examinations provided, and a health register or card system of record kept. The periods will vary according to the character of the risk to which the employees are exposed, but detection is an important element in prevention. Protective practices on the part of the operatives should be encouraged, facilitated, and supported in all reasonable ways. The clothing of employees who are exposed to splashes of leady material must be protected by overalls or aprons, and these adjuncts must be kept in a clean condition, and deposited, when not worn, in a separate and suitable place. Facilities for washing in factories and on jobs should be provided, and provision made so that employees can eat their meals away from their apparatus and work or other likely causes of contamination of their hands and food. Carelessness and want of consideration on the part of employers are contributing causes of lead-poisoning, but they afford no reasons, as against the public and the lead-producing, refining, and manufacturing industries, for the prohibition of the use of lead by painters.

From the medical standpoint authoritative opinion stands against prohibition. "There is not sufficient evidence," says Sir Kenneth Goadby, "from the medical point of view to justify the prohibition of white-lead. Lead-poisoning amongst painters is a dust question rather than anything else, and it seems to follow that what is necessary is to remove the dust rather than prevent the material being used. . . . If you could cut out

* "Memorandum on Industrial Lead Poisoning," Form 324, 1921, Factory Department Home Office, p. 12.

turpentine, and cut out dust, you could leave lead." Professor Chapman and Dr. S. A. Smith see no necessity for the prohibition of the use of white-lead in paints. Sir Thomas Oliver, after describing the effects of protective measures in the case of certain lead workers in Hungary, said, in July last, with reference to the painting industry: "If such a satisfactory result can be produced by improving the methods of production without dislocating an industry, is it not advisable, before rushing to such an extreme measure as prohibition, to see, first, what regulations can accomplish? If additional evidence is required to support my argument, it can be seen in what has been achieved in the manufacture of pottery in Great Britain."

The case for prohibition, the Board agrees, is not made out, but much doubt with respect to the issue will persist in the minds of those affected by this determination until medical science demarks more satisfactorily the limits of lead-absorption as distinguished from lead-poisoning.

In its interpretation of the relevant vital statistics the Board adopted the view that lead and zinc dusts were co-efficients of cause with siliceous dust of the tuberculosis of lead-miners and painters. Prohibition of the use of lead might render the dust inhaled by the painter innocuous if a combination of zinc dust and siliceous particles did not prove equally deleterious. None of the medical witnesses or authorities suggest that there is sufficient siliceous dust in the painter's environment to cause, alone, the degree of tuberculosis from which he suffers. But the prohibition of the use of abrasive papers and bricks compounded of siliceous materials would also be likely to render the absorption of lead dust or zinc dust innocuous to the painter's lungs; or prohibition of the use of both dry lead and siliceous materials, that is, the prohibition of dry rubbing-down, would have the same effect. And if one has to choose between prohibitions, the lastmentioned form would appear to be by far the less disturbing, and correspondingly the more expedient. Again, by common consent of the medical witnesses and the English medical authorities, lead dust and turpentine vapours are independent if co-existent causes of the arterio-renal disease from which painters suffer, but to what extent the health conditions of painters are seriously prejudiced by these vapours, or, indeed, those of the other volatile substances with which they are in daily contact, science cannot at present say. Some proportion, however, of the damage caused to the painter's health by the materials with which he works must be assigned to turpentine, and possibly to a combination of turpentine vapours and lead dust. The prohibition of the use of lead in paints will probably not prevent paint sickness of the nephritic type.

The effects of prohibition cannot be confined to the painting industry. Prohibition, even within the State of New South Wales, will seriously affect the local lead-corroding and lead-mining industries; a consideration which must have full weight when there is any element of uncertainty in the factors upon which a suggestion for prohibition is based.

The Board, for reasons of the same order, cannot recommend the restriction of the use of white-lead in paints or pigments. There is no means of measuring the degree of restriction which might prevent the evils attendant upon the unrestricted use of white-lead in paints.

Regulation of the use of white-lead in the painting industry is immediately necessary, both in the interests of painters and the community. The Board does not recommend either prohibition or restriction, but regulations may imply one or the other should further study of the painters' circumstances prove it ultimately to be expedient or necessary. Two things must follow upon the adoption of a scheme of regulations: the prevalence of the disease must be progressively reduced in such a way as to give promise of its complete prevention, and meanwhile the damage caused must be measured, and all victims of the disease, without exception, must be adequately compensated. If regulations fail to produce either of these results they must give place to restriction or prohibition. But in that event restriction will probably follow automatically, *i.e.*, by the voluntary act of those who control the industry, and prohibition may, then, by degrees, be arrived at.

The English Factory and Workshop Act and regulations provide for the following classes of precautions being taken in the lead industries:—

1. Efficient measures for the avoidance or removal of dust or spray which is formed in the course of work and contains lead in its composition.
2. The provision of hot water for the purpose of washing, and adequate washing accommodation.
3. The provision of mess rooms.
4. The provision of overalls and their washing and maintenance.
5. The provision of cupboards for the storage of overalls when not in use, and of separate cupboards as cloak-rooms at a distance from any source of lead-laden dust for the storage of outdoor clothing which is taken off during working hours.
6. The limitation of hours of employment.
7. Periodical medical examination with power on the part of the examining doctor to suspend from work.

These provisions, admirable as they are in many ways, are not, in the opinion of the English Departmental Committee on the use of paints containing lead in the painting of buildings, adequate, and would, in the painting industry be costly and difficult to enforce or comply with.* They represent the foundation in principle of every scheme of rules designed to ameliorate factory conditions, but it is quite probable that they do not go as far as the situation requires, and there is little doubt but that when inspection is the fulcrum of regulation the system may fail. What is appropriate to factory conditions is not necessarily of value under house-painting conditions. The Board believes, however, that if there is a will to prevent the evils of lead-poisoning in house work there will also be a way. It cannot, in the time available for its inquiry, become so familiar with the details of the painting industry as to be able to teach those who follow it regularly, whether as employers or employees, how it can best be conducted in the health interests of employees and the public; but it can and does suggest that to those whose interests are wrapped up in any of the phases of that

* Reports of the Departmental Committees appointed to Investigate the Danger Attendant on the Use of Paints etc. (Cd. 7882), p. 89.

industry the law can offer inducements calculated to make them find means of preventing lead-poisoning.

The principles of the English Workmen's Compensation (Silicosis) Act, 1918, are likely to be of equal validity in relation to lead-poisoning. The aim of that measure is to preserve the principle of the employer's responsibility as established under the Workmen's Compensation Act, 1906 (England), but to substitute for individual liability a generalised basis of responsibility. Under the Act a constitution is conferred upon each of the industries affected; insurance of the employer is compulsory; self-government in the interests of social welfare replaces administrative inspection and control; and a superior degree of protection is offered to those likely to claim compensation. An organised industry, acting as the insurer of the units conducting individual enterprises, settling claims for compensation by the agency of joint committees of employers and employees, and aided by a medical department presided over by scientific men appointed by the Crown, but paid out of the insurance fund, will have every inducement to find means of protecting its funds and its employees together. A norm of conduct in relation to lead risks will be set in the light of combined experience and common interests, and premiums will strictly reflect all departures from that norm. Thus, for example, where dry white-lead is used, where dry rubbing-down is practised, where laundry and washing facilities are not provided, appropriate penalties in insurance rates will tend to protect the industry as a whole. In addition, the educational effect of joint administrative action on the part of employers and employees will be important, particularly when buttressed by the training of apprentices in industrial hygiene, as is hereafter recommended. Thus it should be practicable to uphold and render effective the registration of workmen for periodical medical examination and the control of their employment by the medical authority. The text of the English Act is given as Appendix V to this report. No attempt need here be made to outline the complex of the conditions which might suggest themselves to the practical mind bent upon reducing the risks of the industry. It should suffice to say that the radical reform that has been achieved in England by means of regulations and expert medical opinion in the lead-handling factory industries can be repeated in the painting industry if there be the necessary will to produce the desired effects.

Reasons of self-interest should commend this plan to the employers. The recurrent absence of pathognomonic or specifically characteristic symptoms and the consequent uncertainty of medical diagnosis of the disease has been shown to the Board in concrete cases, and if English experience may be taken as a guide, it is inevitable that as attention is drawn to industrial lead-poisoning the deaths from the disease will show a tendency to persist or even increase in number. Whereas, in England, over a series of four quinquennia from 1900 to 1919 the total numbers of cases were 753, 599, 548, and 279, the total numbers of deaths of factory workers were 27, 28, 34, and 21; the continued diminution in cases was not accompanied relatively by a corresponding fall in the number of deaths. The seeming anomaly is, says the Factory Department of the Home Office, the result of more frequent association now than formerly, following on the operation of the Workmen's

Compensation Act, 1906, of lead-poisoning on death certificates of lead-workers suffering from chronic nephritis and its sequelæ.* Ordinary insurance methods will merely reflect this tendency in an increase in premium rates, but the self-insured and organised industry will have the assistance of a scientific study of the medical aspects of the disease, and there will, at the least, be no occasion to fear an irresponsible conflict of medical opinion, on the one hand, or a failure to attribute death or ill-health to the risks of the trade, on the other.

Regulation, to be complete, must invest the Medical Referees with power to suspend or prohibit employment with lead risks for prophylactic reasons. The determination of vocational fitness thus involved can be made a normal condition of industry by the educational work of the joint committees contemplated by the scheme now recommended. The justification for such a safeguard lies in the great advances recently made in medical research. The scientific aspect of the matter is that those who are particularly susceptible should be saved from the special accidents that an industry may involve them in; and that those whose immunity to risk can be developed should be treated with the necessary degree of care.

In the case of young persons something further requires to be done, and in this respect guidance may be had from the provisions of the Women and Young Persons (Employment in Lead Processes) Act, 1920, which was passed in England in accordance with the recommendation of the General Conference of the International Labour Organisation held at Washington in 1919. This Act makes the employment of women and young persons under the age of 18 years in processes involving the use of lead compounds permissible only subject to the following conditions:—

- (a) locally applied exhaust ventilation so as to remove dust and fumes at the point of origin;
- (b) cleanliness of tools and workrooms;
- (c) notification to Government authorities of all cases of lead-poisoning and compensation therefor;
- (d) periodic medical examination of the persons employed in such processes;
- (e) provision of sufficient and suitable cloak-room, washing and mess-room accommodation, and of special protective clothing;
- (f) prohibition of bringing food or drink into workrooms.

These conditions should be embodied in local legislation. But, so far as they affect boys under the age of 18 years, formal legislation may be made wholly or partially unnecessary, for the Board of Trade under section 80 of the Industrial Arbitration Act, 1912-20, is able to prohibit the employment of minors in the painting trades, except as apprentices, and may restrict the practical work of apprenticeship in those trades to boys who have attained the age of 18 years. The earlier years may well be occupied in technical work and the training of the boys in occupational hygiene. The propriety of taking such action will be considered by the Board in due course.

* "Memorandum on Industrial Lead-poisoning," Factory Department, Home Office, 1921, Form 324, pp. 4 to 7.

APPENDICES.

APPENDIX 1.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 14th July, 1921.

Dear Sir,

I beg to inform you that the above-named Board is at present investigating a question referred to it by the Minister for Labour and Industry, as to the possibly injurious effects upon painters of the use of white-lead in paints and pigments. The full terms of the reference are contained on the attached sheet.

For the purpose of further elucidating the matter, the Board will be glad if you will cause to be prepared, with respect to painters—

(a) a table showing the morbidity of painters for a period of 2½ years, as compared with certain other groups of employees and the whole of the employees;

(b) a comparative table for 7 equi-distant fortnightly periods during the past 2½ years, comparing the number of days worked by the average painter with another section of the employees and the whole of the employees;

upon the lines indicated by the Board's statistical officer to your Mr. Shearman.

Yours faithfully,
H. L. LAMOND,
Secretary.

The Manager, Cockatoo Island Dock,
Cockatoo Island.

Cockatoo Island,
18th August, 1921.

Dear Sir,

With reference to your letter of 14th July last, particulars requested therein are furnished hereunder:—

(a) Table showing morbidity of painters for a period of two and a half years ending 30th June, 1920, as compared with other groups of employees and the whole of the employees.

	Trade.	Morbidity.
Painters		1·189 per cent.
Painters and dockers		1·855 „
Joiners		1·672 „
Plumbers		1·179 „
Electrical Fitters and mechanics		1·083 „
Whole of employees		2·131 „

(b) Table for seven equi-distant fortnightly periods during the two years ended January, 1920, comparing the number of days worked by the average painter with other sections of employees and the whole of the employees:—

Fortnight ended.	Painters.	Painters and Decorators.	Joiners.	Whole of employees.
19 Jan., 1918.....	12	10·84	11·27	11·22
25 May, 1918	12	11·24	11·58	11·39
28 Sept., 1918.....	11·48	10·31	11·14	11·15
1 Feb., 1919.....	12	11·14	11·48	11·08
7 June, 1919.....	9·89	11·05	10·9	10·85
11 Oct., 1919.....	11·71	11·22	11·06	11·16
17 Jan., 1920.....	11·32	11·10	10·78	10·74

The Secretary, New South Wales Board of Trade,
University Chambers, 78 Elizabeth-street, Sydney.

Yours faithfully,

J. W. CLARK,
General Manager.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 14th July, 1921.

Dear Sir,

I beg to inform you that the above-named Board is at present investigating a question referred to it by the Minister for Labour and Industry, as to the possibly injurious effects upon painters of the use of white-lead in paints and pigments. The full terms of the reference are contained on the attached sheet.

For the purpose of further elucidating the matter, the Board will be glad if you will cause to be prepared, with respect to painters—

- (a) a table showing the morbidity of painters for a period of 2½ years, as compared with certain other groups of employees and the whole of the employees;
- (b) a comparative table for 7 equi-distant fortnightly periods during the past 2½ years, comparing the number of days worked by the average painter with another section of the employees and the whole of the employees.

The Manager of Cockatoo Island has been requested to furnish similar information, upon lines which have been indicated by the Board's statistical officer, to Mr. Shearman, one of the employees at Cockatoo Island. It is suggested, therefore, that in the event of your deciding to comply with the Board's request, the officer detailed to attend to the matter should get in touch with Mr. Shearman, in order that the information compiled by him may be on similar lines to that obtained from Cockatoo Island.

Yours faithfully,
H. L. LAMOND,
Secretary.

The Manager, Garden Island Dock,
Garden Island.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 14th July, 1921.

Dear Sir,

I beg to inform you that the above-named Board is at present investigating a question referred to it by the Minister for Labour and Industry, as to the possibly injurious effects upon painters of the use of white-lead in paints and pigments. The full terms of the reference are contained on the attached sheet.

For the purpose of further elucidating the matter, the Board will be glad if the Railway Commissioners would be good enough to have prepared by the Timekeepers at the Carriage-building Workshops, the Randwick Workshops, and the Permanent-way Branch, with respect to painters—

- (a) a table showing the morbidity of painters for a period of 2½ years, as compared with certain other groups of employees and the whole of the employees;
- (b) a comparative table for 7 equi-distant fortnightly periods during the past 2½ years, comparing the number of days worked by the average painter with another section of the employees and the whole of the employees;

upon the lines indicated by the Board's statistical officer to Mr. Haywood, Principal Timekeeper at the Carriage-building Workshops.

The Board will recommend that the Commissioners be reimbursed for any reasonable expense to which they may be put in supplying the information required.

The Secretary to the Railway Commissioners,
Bridge-street, Sydney.

Yours faithfully,
H. L. LAMOND,
Secretary.

Richmond Terrace, Domain, Sydney,
Sydney, 30th June, 1921.

The Secretary, Board of Trade.

Subject:—Incidence of Plumbism as causative factor in insanity.

With reference to telephone communication received from your office asking that this Department should prepare a statement for production as evidence in the inquiry now being held by the Board of Trade, as to the effect of use of white lead in the painting industry, I desire to inform you that plumbism as a causative factor in insanity is of little incidence which it is not usual to record separately in statistics regarding the causes of insanity. Ordinarily it would be grouped amongst the causes known as Toxins, which itself is a comparatively small group and which but few diagnosticians would subdivide. I am, however, asking the Medical Superintendents of the various mental hospitals to turn up their records to ascertain whether information of the nature you seek is available, and, if so, will forward it to you when received. Such information, however, will not be complete and could not be taken as an indication of exact numbers. Under the circumstances, therefore, it would not appear that any advantage would be gained at the inquiry by asking an officer of the Department to produce such information as evidence.

E. SINCLAIR,
Inspector-General of Mental Hospitals.

Office of the New South Wales Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 29th July, 1921.

The Inspector-General of Mental Hospitals,
Richmond Terrace, Domain, Sydney.

Subject:—Incidence of Plumbism as causative factor in insanity.

Reference:—Your letter of 30th June, 1921.

Referring to your letter of the 30th ultimo on this subject, I beg to quote from Sir Thomas Oliver's "Dangerous Trades," 1902, p. 308, as follows:—

"The question of insanity in lead workers has been very ably dealt with by Dr. Robert Jones,* the Medical Superintendent of the London County Asylum, Claybury, Essex. Taking the proportion of 1 lead worker, in the broad sense of the word, to every 58 of the adult population thereof ought to be in Claybury 18 male patients belonging to that class. As a matter of fact, however, out of 1,050 males in the asylum, there are 35 who have been lead workers, plumbers, painters, and glaziers, but excluding pottery workers and miners. In examining the histories of 3,500 male patients admitted into Claybury, Dr. Jones found that of these, 133 were artisans, who, in their trade, had possibly become impregnated with lead; their occupation was as follows:—

Painters	75	Gasmeter makers	2
Decorators	13	Colour grinder	1
Plumbers	18	File Cutter	1
Gasfitters	13	Tea-lead roller	1
Labourers in lead works	6		
Grainers	3		133

Of these, 19 had signs of lead poisoning upon admission, such as paralysis, colic, and blue line on gums, while in 22 there was a history of convulsions (encephalopathy), headache, giddiness, and paralysis. Of the 133 cases the following is the analysis of their mental condition:—

Mania	37	(?) General Paralysis	7
Melancholia	33	Alcoholic Mania.....	3
Dementia.....	19		
Dementia with Epilepsy	10		133
Dementia with General Paralysis	24		

The effect of these figures is to indicate a much higher percentage of insane persons amongst trades associated with lead than amongst the general adult population.

The Board of Trade would be glad to learn whether a similar examination could be made of the histories of patients in the various Mental Hospitals under your control, or whether you could confirm or rebut the proposition that a state of affairs exists in New South Wales similar to that indicated by the statistics quoted.

D. T. SAWKINS,
Statistical Officer.

Richmond Terrace, Domain,
Sydney, 10th August, 1921.

The Secretary, New South Wales Board of Trade.

Subject:—Incidence of Plumbism as causative factor in insanity.

Reference:—Your letter of 29th ultimo.

With reference to your letter of the 29th ultimo regarding plumbism as a causative factor in insanity, I desire to inform you that I have had careful investigations made in the Mental Hospital, Callan Park, which is one of the largest acute Mental Hospitals, and append statements showing the results.

The period taken was from 1st January, 1910, to 30th June, 1921, and the occupations chosen as likely to be affected were, plumbers, painters, printers, and miners (excluding coal-miners). The patients taken were the new admissions each year, not the hospital population, at a given date, as this, it is considered, would give the more correct information, obviating the dealing with accumulation of cases from an indefinite number of years. The figures show that in the period mentioned 3,685 male patients were admitted to hospital, including the following, who would be likely to be subject to plumbism owing to nature of their occupation:—

Plumbers	33
Painters	46
Miners (except coal-miners)	37
Printers	18
Plasterers (previously employed in engineering shop)	1
Metal workers	2
Metal polishers	1
Labourers (Sifting powdered scrap metal)	1

* British Medical Journal, 22nd September, 1900.

For the reasons above stated, as it is not considered correct to take the population of a hospital at any one time, the comparisons will not be made with the resident population of Claybury, as set out in your letter. The other figures, however, where the histories of 3,500 male patients are examined, it may be useful to compare with those obtained from the Mental Hospital, Callan Park. Thus—

Claybury had,—

Patients examined	3,500
Patients engaged in trades predisposing to Plumbism	133
Patients with Plumbism	19

While Callan Park shows,—

Patients	3,085
Patients engaged in trades predisposing to Plumbism	139
Patients with Plumbism	10

but of the ten cases as reported to be suffering from plumbism on admission to hospital, it should be noted that the medical opinion of the hospital after admission was that five only exhibited definite signs that such was the case. It is doubtful, therefore, whether they should be included in figures showing the incidence of plumbism, but have been so included to make the figures as full as possible.

It would seem therefore, that so far as this State is concerned, as previously stated, plumbism as a causative factor in insanity has but little incidence.

E. SINCLAIR,

Inspector-General of Mental Hospitals.

APPENDIX 2.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 20th July, 1921.

Dear Sirs,

The Board of Trade is now, in pursuance of a Ministerial reference, holding an inquiry upon the question whether white-lead, as used in the painting industry, is so injurious to painters and other workers engaged in such industry that its use in paints or pigments should be regulated, restricted, or prohibited. The scope of the inquiry is to be wide enough to enable the Board to report upon all incidental matters such as may have to be considered by the Government when answering proposals for the prohibition by international agreement of the use* of white-lead in painting, which have reached it from the third session of the International Labour Conference held at Geneva in April last.

The Board has already had some valuable assistance from various officers of your Department, and hopes that because of the range and special character of your experience as a great employer in this and other industries, you will be able to co-operate with it and the Department of Public Health in conducting a clinical study of the existing state of health of the painters and painters' labourers now employed in your workshops in the metropolis.

The Board's proposal is that three medical practitioners, one being the Railway medical officer, the second an officer of the Department of Public Health, and the third a physician and scientist of repute to be nominated by parties appearing before the Board in the inquiry, should be authorised to make the study, and that the expenses of the work should be shared by the three interests and the Board. These expenses can only be estimated by the professional gentlemen to be concerned, but should not be excessive, because the undertaking, if mutually agreed upon, might be concluded within, say, three weeks. The results of a study so made should have extraordinary authority, and enable the Board and the Government to speak with comparative certainty upon the questions at issue.

There is undoubtedly considerable unease or misgiving in industrial circles with respect to what are rightly or wrongly believed to be the effects of the use of white-lead in paints, and a great deal of advantage should accrue to all concerned from an authoritative moderation of contention in this regard.

The Board trusts that it will have your favourable and early consideration of this communication.

The Railway Commissioners,
Department of Railways, Sydney.

Yours faithfully,
GEO. S. BEEBY,
President.

New South Wales Government Railways and Tramways,
Office of the Commissioners,

Dear Sir,

Sydney, 22nd July, 1921.

I am directed by the Commissioners to acknowledge receipt of your letter of 20th instant, relative to the proposal of the Board of Trade to appoint a Committee of three medical practitioners (one being a scientist of repute to be nominated by parties appearing before the Board) to conduct a clinical study of the existing state of health of painters and painters' labourers now employed in this Department's workshops in the Metropolis, and to say that the proposal will have consideration by the Commissioners. A further reply will be sent without delay.

Yours faithfully,

The President of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-st., Sydney.

W. JNO. MORRIS,
Secretary.

New South Wales Government Railways and Tramways,
Office of the Commissioners,

Dear Sir,

Sydney, 28th July, 1921.

With reference to your letter of the 20th instant, indicating that it is the desire of the Board of Trade to have a clinical study made of the health of painters and others employed in this Department, I have to inform you that the Commissioners have agreed to the suggestions contained in your communication, and directions will be given accordingly.

Yours faithfully,

His Honor Judge Beeby, President,
Board of Trade, Sydney.

W. J. MORRIS,
Secretary.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 12th August, 1921.

Dear Sir,

I beg to acknowledge the receipt of your two letters of the 22nd and 28th ultimo addressed to the President of the above-named Board, intimating that the Commissioners are agreeable to certain suggestions conveyed for the appointment of a committee to make a clinical study of the health of painters and others employed in your Department, and to inform you that the matter will be discussed before the Board at the earliest opportunity.

Yours faithfully,

The Secretary to the Railway Commissioners, Sydney.

H. L. LAMOND,
Secretary.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 20th August, 1921.

Dear Sir,

I beg to refer to your letter of the 28th ultimo, intimating that the Railway Commissioners are agreeable to the suggestions contained in my communication of the 20th idem to the effect that a clinical study should be made of the health of painters and others employed in your Department, and to inform you that inasmuch as the other parties to the inquiry respecting the injurious effects of the use of white-lead in paint are not favourable to the clinical examination, it is not proposed to proceed any further in the matter.

Yours faithfully,

The Secretary to the Railway Commissioners, Sydney.

GEO. S. BEEBY,
President.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 16th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters.

I have noticed the statistics of old-age and invalid pensions published in the Commonwealth Year Books. Will you be so good as to inform me whether you have any further tabulations showing, for example, the former occupations of the male invalid pensioners in the various age-groups? Such a table, covering a series of years, would throw light on the relations of invalidity to occupation. A similar table in respect of the male old-age pensioners would also be useful. Tables showing for the various occupations the frequency of each disease or other cause of invalidity would probably be most valuable in the study of occupational morbidity—a field in which there are few or no local statistics.

The Board would be very much obliged to you for any help which you may be able to give it.

Yours faithfully,

The Deputy-Commissioner for Pensions, Brook's Buildings,
65 Elizabeth-street, Melbourne.

D. T. SAWKINS,
Statistical Officer.

Commonwealth of Australia, Pensions and Maternity Allowance Office,

Department of the Treasury, Landsdown-st.,
Melbourne, 23rd July, 1921.

Dear Sir,

With reference to your letter of 16th July addressed to the Deputy-Commissioner of Pensions, Melbourne, I have to say that particulars of the employment of pension claimants are not recorded by this Department. I regret, therefore, that I am unable to assist you in the direction you desire.

Yours faithfully,

The Statistical Officer, N.S.W. Board of Trade,
Sydney.

G. MERFORD,
Assistant Commissioner of Pensions.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 16th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment?

Yours faithfully,

The Secretary,
North Shore Hospital, North Sydney.

D. T. SAWKINS,
Statistical Officer.

The Royal North Shore Hospital of Sydney,
St. Leonards, Sydney,

Dear Sir,

21st July, 1921.

In reply to your letter of the 16th inst. in reference to the statistics available at this hospital of the causes of sickness and death of painters and other trades, I have to inform you that information is available as to the occupations of every patient admitted for treatment into the hospital.

I believe that the information you require could be readily made available for the purposes of your inquiry.

Yours faithfully,

The Statistical Officer,
Office of N.S.W. Board of Trade,
University Chambers,
78 Elizabeth-street, Sydney.

ARTHUR H. RUSSELL,
Secretary.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 16th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment.

Yours faithfully,

The Secretary,
Sydney Hospital, Sydney.

D. T. SAWKINS,
Statistical Officer.

Sydney Hospital,
Macquarie-street,

Dear Sir,

Sydney, 2nd August, 1921.

In reply to your letter of the 16th ultimo, I have to advise that our records do contain data, but are not readily available over a period of, say, three years. It would be necessary to go through at least 20,000 papers to obtain the information you require.

Yours faithfully,

The Statistical Officer,
The N.S.W. Board of Trade,
University Chambers,
78 Elizabeth-street, Sydney.

W. PERRY,
Medical Superintendent.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 16th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment?

Yours faithfully,
D. T. SAWKINS,
Statistical Officer

The Secretary,
Prince Alfred Hospital, Sydney.

Royal Prince Alfred Hospital,
Camperdown, Sydney,
18th July, 1921.

Dear Sir,

I received your letter of the 16th instant, inquiring as to whether information as to the occupations of the various patients who are treated in hospital is recorded, and also as to whether such information could be made available for your Department.

In reply, I beg to inform you that we record the actual numbers of the occupations of patients who are treated in hospital, but the information as to the diseases or conditions for which the respective patients are treated is not filed statistically. I would point out, however, that this information is supplied to the Government Statistician on special record forms, and such details are supplied to the Department annually.

We shall be very pleased to afford you particulars as to the actual number of patients treated in hospital under the various trades, and this information could be supplied as for many years past. Should the relative information as to diseases, &c., be required I would refer you to the Government Statistician, from whom the information could no doubt be readily obtained.

Yours faithfully,
WILLIAM EPPS,
Secretary.

The Statistical Officer,
Office of the N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 20th July, 1921.

Dear Sir,

I was pleased to learn from your letter of the 18th instant that you would be able to supply particulars of the actual number of patients treated in hospital under the various trades, and that this information would be available as for many years past. I should be glad to receive such information in respect of the three years 1918, 1919, and 1920, if readily available.

For further information the Board can refer to the Government Statistician, to whom you supply annual returns.

Yours faithfully,
D. T. SAWKINS,
Statistical Officer.

The Secretary,
Royal Prince Alfred Hospital,
Camperdown, Sydney.

Royal Prince Alfred Hospital,
Camperdown, Sydney,
22nd July, 1921.

Dear Sir,

I received your letter of the 20th instant, with further reference to supplying your Department with particulars as to the actual number of patients treated under the various trades, and requesting that this information might be made available to your Department for the years 1918, 1919, and 1920.

Unfortunately our record of these particulars for 1920 has been mislaid, and up to the present we have not been able to locate it. I am, however, arranging for the information you require to be made available for the three years to the end of June, 1918, 1919, and 1921, and trust that this may meet your requirements.

I shall be pleased to forward the list on to you as soon as same has been completed.

Yours faithfully,
WILLIAM EPPS,
Secretary.

The Statistical Officer,
Office of the N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

Royal Prince Alfred Hospital,
Camperdown, Sydney,
27th July, 1921.

Dear Sir,

In accordance with the request contained in your letter of the 20th instant, I now have pleasure in forwarding you herewith a list of occupations of patients who were treated in this hospital during the years to the end of June, 1918, 1919, and 1921 respectively, and which I trust will afford you the information required.

Yours faithfully,

The Statistical Officer,
Office of the N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

WILLIAM EPPS,
Secretary.

(List not printed.)

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 30th July, 1921.

Dear Sir,

I beg to acknowledge the receipt of your letter of the 27th instant, and to thank you for the list of occupations of patients forwarded therewith.

Yours faithfully,

The Secretary,
Royal Prince Alfred Hospital,
Camperdown, Sydney.

D. T. SAWKINS,
Statistical Officer.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 20th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment?

Yours faithfully,

The Secretary,
Queen Victoria Home for Consumptives,
King's Tablelands, *via* Wentworth Falls.

D. T. SAWKINS,
Statistical Officer.

Queen Victoria Homes,
Sydney, 28th July, 1921.

Dear Sir,

With reference to your communication of the 20th instant, I have to inform you that the occupations of persons who have been under treatment at the Queen Victoria Homes are contained in our hospital records, and could be supplied to your Board when desired.

Yours faithfully,

The Statistical Officer,
Office of the N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

ANNIE McC. HYNES,
Secretary.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 20th July, 1921.

Dear Sir,

The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment.

Yours faithfully,

The Secretary,
Waterfall Sanatorium,
Waterfall, N.S.W.

D. T. SAWKINS,
Statistical Officer.

Waterfall Sanatorium,
Waterfall, N.S.W.,
2nd July, 1921.

Dear Sir,

During twelve years only thirty-nine painters have been treated, all suffering from consumption. Five were arrested and able to return to work, twenty-three were much better and most able to resume work, one was worse, while nine died during that period.

Total number of cases treated is 5,497.

Simple records are available.

The Statistical Officer,
N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

Yours faithfully,
H. W. PALMER,
Medical Superintendent.

Office of the N.S.W. Board of Trade,
University Chambers, 78 Elizabeth-street,
Sydney, 3rd August, 1921.

Dear Sir,

Many thanks for your memorandum of the 23rd July, giving a summary of statistics of cases treated at the Waterfall Sanatorium.

I should be glad if you would supply additional information in order to make the figures perfectly clear:—

1. Was the period for which the total number of cases treated was 5,497 the same as the period in which thirty-nine painters were treated, namely twelve years?

2. Does the total number of cases treated, namely, 5,497, include cases of adult males, adult females, and children. If so, will you be so good as to subdivide the total number of cases treated accordingly?

The Medical Superintendent,
Waterfall Sanatorium,
Waterfall, N.S.W.

Yours faithfully,
D. T. SAWKINS,
Statistical Officer.

Waterfall Sanatorium,
Waterfall, N.S.W.,
16th August, 1921.

Dear Sir,

The total number of patients treated here during the twelve years the sanatorium has been opened is 5,497, but the length of stay of each patient varies considerably. It includes both men, women, and children. Women were first admitted here in 1912 (May), that is a little over nine years. Totals treated:—Men, 3,984; women, 1,381; children, 132.

The Statistical Officer,
N.S.W. Board of Trade,
78 Elizabeth-street, Sydney.

Yours faithfully,
H. W. PALMER,
Medical Superintendent.

APPENDIX III.

MEMORANDUM BY STATISTICAL OFFICER.

17th August, 1921.

Investigations made by the Inspector-General of Mental Hospitals into the Incidence of Plumbism as a Causative Factor in Insanity.

THE Inspector-General of Mental Hospitals, Dr. Eric Sinclair, has been so good as to have a special investigation made (on the lines of the Claybury investigation, quoted in my letter of the 29th July, attached) of the occupations of persons admitted to Callan Park Hospital during the past eleven and a half years, with reference to the incidence of plumbism as a causative factor in insanity. The Inspector-General states, in his letter of the 10th instant, that he caused an investigation to be made of the records of the new admissions to Callan Park Hospital each year from the 1st January, 1910, to the 30th June, 1921, instead of "dealing with the accumulation of cases from an indefinite number of years." I think this is the most satisfactory statistical method which could have been adopted.

I have taken from the Annual Commonwealth Bulletins of Population and Demography the number of deaths in New South Wales in each year from 1910-1919, of males in all occupations, ; of males in the industrial division, books and publications; and in mining and quarrying; of painters, glaziers and signwriters engaged in buildings; and of plumbers. The average annual numbers of deaths were :—

TABLE I.—Average Annual Number of Deaths in New South Wales in All and Certain Occupations, 1910-1919.

All Males, excluding Dependent Relatives.....	8,196
Males in the Industrial Division, Books and Publications	54
Males in Mining and Quarrying.....	579
Painters, Glaziers and Signwriters engaged in Buildings	89
Plumbers.....	34

The Inspector-General's investigations show the total number of male patients who were newly admitted to Callan Park Hospital during eleven and a half years, and the number of patients of various occupations newly admitted during the same period. The following figures are taken therefrom :—

TABLE II.—New Admissions to Callan Park Hospital, 1st January, 1910 to 30th June, 1921.

Occupation.	Total (11½ years).	Annual average.
All Males	3,085	268
Printers	18	1.6
Miners (except Coal-miners)	37	3.2
Painters	46	4
Plumbers	33	2.9

The first thing to be noticed is the smallness of the annual figures in Table II as compared with those in Table I. The relative importance of Callan Park may be gauged by the following figures :—Of 551 male patients admitted in 1906 to mental hospitals in New South Wales for the first time, 211 were admitted to Callan Park. In 1919 the corresponding figures were 726 and 284. Thus, Callan Park takes roughly 40 per cent. of the total new male cases. Therefore, even if the Inspector-General's investigation had covered the whole of the mental hospitals and licensed houses in the State, the figures been multiplied by less than 3.

In 1919, about one-third of the males admitted were discharged as recovered, and the number of re-admissions of males during the year was about one-seventh of the number of first admissions. Therefore, if the Callan Park new admissions be multiplied by two, a rough idea will be got of the average annual number of entrants to mental hospitals throughout the State who do not recover their sanity.

Even if the annual figures for particular occupations in Table II be multiplied by two, the results are still too small to be reliable for the purpose of calculating percentages or ratios. The tables say, after the multiplication by two, of the figures in the second, that 89 painters, &c., died, while 8 painters became permanently insane, on an average per year of the past ten or twelve years. The corresponding figures for all males, except dependent relatives (mostly children) were 8,196 and 536. That is to say, giving the figures their apparent value in full, that for every 15 or 16 adult males who died, 1 became permanently insane, and for every 11 painters who died, 1 became permanently insane. The death rate of painters was found to be at the most 12.9, and of all males about 12.0 per thousand per annum during the seven years centred at 1911. The insanity rate of painters would, therefore, be roughly 1.2, and of all males, excluding dependants, about 0.8 per 1,000 per annum. The difference is about equal to the extra death rate of painters due to accident by fall.

Thus we have found the worst possible construction of the figures for painters as compared with the figures for the average adult male. But the deaths of painters, &c., quoted in Table I, refer exclusively to those engaged in buildings. If those engaged in ship-building, carriage-making, &c., were included, the number of deaths would be increased. Therefore, if "painter," as used in a mental hospital for describing in a general way a man's occupation, happened to include coach-painters and ship-painters, the ratio of cases of insanity to cases of death might be 1 to 13 instead of 1 to 11. In that case the insanity rate of painters would be 1.0 instead of 1.2, and the excess above the average would be equal to about half the extra death-rate of painters due to fall.

I do not put the last calculation forward as the best possible construction of the figures for painters. Other portions of the Inspector-General's figures seem to show a risk of insanity due to plumbism averaging through a number of occupations in which lead is used, about one-fourteenth of the ordinary risk. Even if double this extra risk were attributed to painters, the result would be a rate about 0.1 per 1,000 per annum above the average insanity rate. The excess may be 0.2 in the case of painters, as calculated above. Even so, it is a comparative trifle.

The case of plumbers seems, from the figures, considerably worse than the average. But this occupation is very hard to identify. Tinsmiths, galvanised-iron workers, and others are easily confused with plumbers: in country towns these occupations often go together. The disagreements between census figures for the population of "plumbers," the annual number of deaths of "plumbers," and the annual number of births of children whose fathers were "plumbers," show that "plumber" is one of the most unreliable descriptions.

The figures for metal-miners seem to show that they are far less liable to insanity than the average man. The number of deaths of males in mining and quarrying in Table I must, of course, be reduced by more than 50 per cent. to get a number which might be comparable with the number in Table II. This is another occupation presenting difficulties, owing to migration as well as description. Rather than that the figures may be accepted as proving high and low rates for plumbers and metal-miners, respectively, I should say that the figures merely prove themselves unreliable. The sources of their unreliability may be sought in their smallness, in the difficulties and lack of agreement in occupational description, &c.

The case of printers is as near the average as could be expected from such small figures.

Of 133 patients at Claybury who ran lead risks, 19 were found to be cases of plumbism. Of 139 patients at Callan Park, 10 were found to be cases of plumbism and 5 of these were doubtful. There is a considerable difference in the proportions at Claybury and Callan Park, which may be due partly to chance and partly to the personal equation of the medical examiners. Taking the figures as they stand, and at their worst, we see that from one-fourteenth to one-seventh of the cases of insanity of painters, printers, plumbers, and others using lead may possibly have been due to lead.

Dr. Sinclair is, therefore, statistically justified in his conclusion that plumbism as a causative factor in insanity in New South Wales has but little incidence.

The correspondence with the Inspector-General of Mental Hospitals is attached.

APPENDIX IV.

Table showing—(1), for painters, the excess of deaths per hundred due to certain diseases; (2) the median age at death of certain classes.

	Cause of death stated as percentage of all deaths.							Median age at death due to—			
	All causes.	Plumbism.	Bright's Disease.	Phtthisis.	All Other Diseases.	Plumbism, Bright's Disease & Phtthisis.	Excess of deaths in every hundred ascribed to the influence of lead.	All causes.	Plumbism.	Bright's Disease.	Phtthisis.
*All males (England and Wales, 1900-2)	100-00	0-06	3-01	11-11	85-82	14-18	0-00	56 to 57	44	57 to 58	39 to 40
*Plumber, painter-glazier	100-00	1-89	5-94	18-36	73-81	26-19	12-01	48 to 49	44	50 to 51	38 to 39
†Painter	100-00	3-33	8-34	15-72	72-57	27-43	13-25	48 to 49	45 to 46	49	38 to 39

* Calculated from the Supplement to the Sixty-fifth Annual Report of the Registrar-General for Births, Deaths, and Marriages.

† Calculated from the mortality statistics of the National Amalgamated Society of Operative House and Shlp Painters and Decorators, 1905-10, and of the Scottish Painters' Society, 1901-10.

APPENDIX V.

Workmen's Compensation (Silicosis) Act, 1918.

1. (1) The Secretary of State may, by scheme, provide for the payment of compensation by the employers of workmen in any specified industry or process or group of industries or processes involving exposure to silica dust—

- (a) who are certified in such manner as may be prescribed by the scheme to have suffered death or total disablement from the disease known as fibroid phtthisis or silicosis of the lungs (in this Act referred to as silicosis), or from that disease accompanied by tuberculosis; or
- (b) who, though not totally disabled, are found on medical examination to be suffering from silicosis, or from silicosis accompanied by tuberculosis, to such a degree as to make it dangerous to continue work in the industry or process, and are for that reason suspended from employment :

Provided that, in the case of silicosis accompanied by tuberculosis provision shall not be made by the scheme for the payment of compensation unless the silicosis was so far advanced as to make the workman specially liable to tuberculosis infection or, though not so far advanced, was likely to accelerate materially the progress of the disease.

(2) The scale of compensation fixed by the scheme in the case of death or total disablement due to silicosis unaccompanied by tuberculosis shall be that prescribed by the Workmen's Compensation Act, 1906, as amended by any subsequent enactment, and in any other case shall be such as may be prescribed by the scheme.

(3) Provision may be made by the scheme—

- (a) for the establishment of a general compensation fund, to be administered either through a mutual trade insurance company or society of employers, or in such other manner as may be provided by the scheme;
- (b) for requiring employers to subscribe to the fund, and for the recovery of such subscription, and for the payment and recovery out of the fund of all compensation under the scheme, and of any expenses arising under the scheme which are directed by the scheme to be so paid, subject to such exceptions in special cases as may be made by the scheme;
- (c) for the settlement of claims and other matters arising under the scheme by committees representative of both employers and workmen, with an independent chairman, and for the procedure to be adopted before such committees;
- (d) for the appointment and remuneration of medical officers and advisory medical bodies, and for their duties and powers in connection with the scheme;

(e) for requiring workmen to whom the scheme applies—

- (i) to submit themselves to such periodical medical examination, and
- (ii) to furnish such information with respect to their previous employment in any industry specified in the scheme, as involving exposure to silica dust, as may be prescribed by the scheme, and for making the right of the workman to compensation conditional on compliance with such requirements, and for the suspension from employment of workmen who are found to be suffering from silicosis, or from silicosis accompanied by tuberculosis; and

(f) for the application with the necessary modifications of any of the provisions of the Workmen's Compensation Act, 1906, or of any enactment relating to compensation thereunder, and for defining the industries or processes to which the scheme applies, and generally for such further or supplemental matters as appear necessary for giving full effect to the scheme.

(4) Any scheme made under this Act may be extended or varied by any subsequent scheme made in the like manner, and shall have effect as if enacted in this Act, but any scheme made under this Act shall be laid before each House of Parliament forthwith, and, if an address is presented to his Majesty by either House of Parliament within the next subsequent twenty-one days on which that House sits next after any such scheme is laid before it praying that the scheme may be annulled, his Majesty in Council may annul the scheme, and it shall thenceforward be void, but without prejudice to the validity of anything done thereunder.

(5) The Rules Publication Act, 1893, shall not apply to any scheme made under this Act.

2. This Act may be cited as the Workmen's Compensation (Silicosis) Act, 1918.

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THE NEW SOUTH WALES BOARD OF TRADE.

Inquiry as to the Injurious Effect of the use of White-Lead in the Painting Industry.

FIRST SITTING.

THURSDAY, 23 JUNE, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. WILLINGTON

MR. COOPER.

DEPUTY-PRESIDENT: The Board of Trade has received a reference from the Minister for Labour and Industry, who is the Minister under the Industrial Arbitration Act, 1912-1918, dated 10th June, 1921, as follows:—

“In exercise of the powers conferred upon me by section 82 (n) of the Industrial Arbitration Act, 1912, as amended, I hereby refer to the New South Wales Board of Trade for consideration and report the following question:—

“Is white-lead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?”

“In connection with this reference, it is desired that the Board of Trade shall investigate and report upon all matters incidental thereto, with a view to supplying in its report sufficient information to enable the Government to determine the answers to be furnished to a questionnaire (including a request for statistical information) which has been prepared by the International Labour Office for the purpose of securing information for consideration at the third session of the International Labour Conference to be held at Geneva in October next, relative to the question of the prohibition of the use of white lead in painting.

“I make available for the Board's information in such connection, copy of a pamphlet issued by the International Labour Conference upon the question of the prohibition of white lead in painting, containing the questionnaire referred to, and also forward a report of a Departmental Committee, appointed by the Secretary of State for the Home Department, to investigate the danger attendant on the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages, which was presented to the English Parliament last year.

“(Sgd.) G. CANN,

“Minister for Labour and Industry.”

The Questionnaire is a book entitled as follows:—"III-B. Questionnaire. International Labour Conference; Third Session; Geneva, April, 1921; Prohibition of the use of white lead in painting." The sub-title is "Item iii-B of the Agenda." It was published at Geneva, International Labour Office, 1921.

I take it that some of the parties, at least, have this pamphlet?

Mr. SHERWOOD: I have a copy of it.

DEPUTY-PRESIDENT: Are you the only party in possession of the pamphlet?

Mr. PHELPS-RICHARDS: We have none.

DEPUTY-PRESIDENT: What are the appearances before the Board?

Mr. SHERWOOD (Messrs. Norton, Smith, & Co.): I may say that Mr. Ferguson, the counsel, has been briefed, but he is in another Court this morning, and I appear in his absence for Broken Hill Associated Smelters, Limited, Port Pirie, S.S.; the British and Australian Lead Manufacturers' Proprietary, Limited; the Master Painters and Decorators' Association of New South Wales; the Broken Hill Associated Mines; the Paint Manufacturers' Association; Lewis Berger and Sons (Australia), Limited.

Mr. PHELPS-RICHARDS: I appear for the Master Builders' Association.

Mr. CONNINGTON: I appear for the Operative Painters and Decorators' Union of Australia.

Mr. SHERWOOD: Do I understand that this morning's proceedings will be for the purpose of mapping out a programme of procedure, for outlining the scope of the inquiry, and to give the parties some indication of what the procedure will be?

DEPUTY-PRESIDENT: The purpose of the Board is to make inquiry, and unless there is application for delay, the Board will go on with the inquiry to-day—that is, the Board will take evidence to-day. What causes me some hesitation is the fact that there is but one copy of the Questionnaire pamphlet in the hands of the Board, and that the Board cannot duplicate that copy conveniently in any short period of time. It is essential for the purpose of the Board, and for the purposes of a comprehensive and reasonably effective inquiry, that what is contained in the pamphlet that I have in my hand and what has been referred to as a "reply" to the pamphlet I have, should be known to all persons who are appearing in connection with the inquiry. I personally can see but one course open to us, and that is to have the pamphlets read immediately. Then we will, at least, have some idea of what they contain. A second book has been sent to the Board by the Minister, entitled "Report of the Departmental Committee appointed to investigate the danger attendant upon the use of lead paints in the painting, enamelling, and varnishing of coaches and carriages." The report is issued by the "Committee on the use of lead in painting of coaches, &c." It is a report by a Departmental Committee, which was appointed by the British Government on the 20th January, 1911. The Committee comprised Sir Ernest Hitch; Sir Godfrey Baring; Lord Henry Bintonck; Mr. E. L. Collins, M.B., Medical Inspector of Factories; Mr. A. L. C. Fell, Chief Officer of the London Council Tramways; Mr. C. L. Mason, Works Manager of the London and North Western Railway Company's Works at Wolverton; Mr. Charles Kingate, Secretary of the United Kingdom Society of Coachmakers; Mr. W. Robins, Member of the United Kingdom Society of Coachmakers. The report was addressed to the Principal Secretary of State for the Home Department in January, 1920. It is a foolscap document of forty-three pages. That, after all, is on a special aspect of the matter. No doubt general principles are discussed in this report on coaches and carriages, and it will be essential that the Board should have its proposals canvassed by those who appear before it in the course of this inquiry. It should be possible to get additional copies of this report. The parties should be able to get copies of it at least at the

Public Library. For the purpose of reference at the Public Library I may say that the official number of the report is (Cmd. 630). I am now discussing the British white paper. The red pamphlet is the publication of the International Labour Office of Geneva.

MR. SHERWOOD: I may say I am representing a good number of interests, and they have not had an opportunity yet of meeting together to discuss this matter with their legal advisers. We have simply received instructions in the matter, and before the inquiry proceeds further we would like to have an opportunity of holding a conference with them, and I think it would really facilitate proceedings at a later stage if I were to suggest now that the matter be adjourned, say, until next Tuesday. Monday, of course, is a holiday.

DEPUTY-PRESIDENT: Is it not proposed to call evidence this morning?

MR. SHERWOOD: They have not had an opportunity between themselves to discuss the matter. They have made no arrangements to go on. Of course, this is a very important inquiry and may affect quite a large number of interests. There are quite a number of interests apart from the painting industry itself—that is, the Operative Painters and the Master Painters. It is an inquiry which will affect practically the whole community, in a way, because we know that at the Broken Hill mines they put out the whole of the lead in use in Australia, almost in the world. About 20 per cent. at least of the total output of lead is used for the making of white lead.

DEPUTY-PRESIDENT: I think the Board is well aware of the fact that lead is to be found in almost every connection in life. It is perhaps the material that is most generalised in manufactures, and any prohibition of the use of lead in paints and pigments is likely to have a repercussion in connection with the regulation of the use of lead in other processes.

MR. SHERWOOD: Of course, there has been a tremendous amount of literature printed and inquiry made in practically every country in the world where there has been a proposal to prohibit or regulate its use, and that, of course, will have to be considered.

DEPUTY-PRESIDENT: There has been restriction in a number of the leading countries in the world.

MR. SHERWOOD: I think only in France there was a prohibition, which was never enforced.

DEPUTY-PRESIDENT: There is legislation in France, anyhow, prohibiting the use of white lead in connection with the painting and decoration of houses, and many of the cantons of Switzerland have partly prohibited the use of white lead, and others have discontinued its use. That is, it is suggested by legislation or regulation that its use should be avoided.

MR. SHERWOOD: In the absence of the opportunity of considering what their attitude will be—because my clients want to make a concerted application to the Board—it may be found they may advocate some regulation of it. Of course, I say that without prejudice. The Board will see how important it is, and that it should be fully considered by my clients before they came to the Board with evidence, or put forward their views.

MR. CONNINGTON: We are in a position in which we cannot oppose any application for an adjournment because the matter has, in a sense, been sprung upon the organisation. While it was expected that an inquiry would be held into the question of the prohibition or restriction of the use of white lead so far as paints were concerned, we did not think the inquiry would have come on quite so soon as it has. The Union thought nothing was likely to be done in that direction until such time as the Union made

an application. I may say the executive of the Union have been examining witnesses and obtaining reports from various countries and from other States with regard to this question, and the Union did intend at a early date to make application to the Board for the holding of an inquiry. We are prepared to put our case to-day, but I am not prepared to say I would have my facts and figures marshalled in a manner which would be satisfactory to myself or to the Board. We have a number of authorities—

DEPUTY-PRESIDENT: So far as the trade aspects of the case are concerned, could you not go on to-day;—so far as your case is based upon historical and scientific data I understand you favour an adjournment, but you are ready, I gather from your remarks, to put the industrial aspect of the matter before the Board without delay?

Mr. CONNINGTON: No, I am not quite ready in that regard. To-day, if I went on, it would be upon the historical facts and with regard to investigations which have been held in other countries relative to the same subject, and reports which have been issued by responsible boards in that connection. This question, as you remarked, has been dealt with by practically every country except Australia, and there are statistics, figures, and reports from responsible authorities showing actually what have been the effects of the use of lead in paint. Our idea was to deal with the subject from an historical standpoint so far as records will allow us, and then to assist the Board by calling oral evidence so that you would then, I think for the first time, have the evidence of the men themselves; and of doctors, if necessary, to show what effect the use of lead in paints has had upon the operatives. Of course, apart from that we are endeavouring to ascertain the proportion of non-poisonous paints in use to-day. My opinion is that to-day the quantity used is largely increasing. As to oral evidence and the experience of the operatives, we are not in a position to present that to-day, but we would be in a position to do so on any other date the Board may appoint.

DEPUTY-PRESIDENT: Then you do not oppose the application for adjournment?

Mr. CONNINGTON: No, I do not feel justified in doing that.

DEPUTY-PRESIDENT: Before the question of the adjournment is dealt with, it is essential that the effects and range of the reference should be understood by all parties. That is, the adjournment will not assist parties to prepare their cases unless they know what cases they have to prepare. The principal question of the reference is this:

“Is whitelead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?”

The question refers to whitelead as used in the painting industry, and it raises the question of the injury that its use may do to painters and other workmen engaged in such industry—that is, in the painting industry. It goes on to ask, “Whether it is necessary or expedient to regulate, restrict, or prohibit the use of whitelead in paints or pigments?” Obviously that is with a view to reducing risks in the painting industry. The question primarily does not touch upon the paint manufacturing risks, but asks whether it is expedient or necessary to regulate, restrict, or prohibit the use of whitelead in paints or pigments, with a view to the reduction of risks in the painting industry, and almost directly opens up the question of whether whitelead should be manufactured into paints within the State, or to what extent its manufacture into paints should be restricted within the

State. That is not, however, the whole reference; it is only the leading question of the reference. The reference goes on to say:

" . . . the Board of Trade shall investigate and report upon all matters incidental thereto, with a view to supplying in its report sufficient information to enable the Government to determine the answers to be furnished to a Questionnaire (including a request for statistical information) which has been prepared by the International Labour Office for the purpose of securing information for consideration at the third session of the International Labour Conference to be held in Geneva in October next, relative to the question of the prohibition of the use of whitelead in painting."

And by implication:

- "(1) In view of the fact that it is now technically possible to replace whitelead in painting by efficient substitutes, are you of opinion that a Draft Convention, prohibiting the use of whitelead in painting, should be submitted to the conference?
- "(2) If so, do you consider that a period should be allowed before the prohibition would come into force? Please indicate what period you think necessary, and why?
- "(3) What measures of supervision and control in the application of this prohibition do you suggest?
- "(4) If your Government does not approve of a draft convention prohibiting the use of whitelead in painting, what measures do you propose in order to meet the dangers arising from its manufacture and use?"

Then there is a note:

"In order to facilitate the task of preparation for the conference of 1921 please state: What legislative or other measures intended to diminish or remove the danger of lead poisoning in house painting are at present in force in your country?

Please supply, in addition, all the available statistical information, annual, if possible, since 1910, upon the following points:—

- (a) (1) The number of house painters.
- (2) The number of cases of plumbism amongst house painters, classified, if possible, according to the form of illness: Colic, Paralysis, Nephritis.
- (b) (1) The number of persons employed in the lead and zinc industrial undertakings?
- (2) The output of lead and zinc.

Then there is a table to show how the statistics should be displayed.

Mr. SHERWOOD: May I take it the purpose of this inquiry is to answer that Questionnaire only, or to answer that as well as make a report to the Government for the purpose of bringing in some regulations or restrictions on the use of whitelead, as well?

DEPUTY-PRESIDENT: By reference, the Questionnaire from Geneva is incorporated in the reference made directly by the Minister to the Board.

Mr. SHERWOOD: I take it any recommendations the Board may make may be brought into operation in New South Wales, and would also be the answer to the Questionnaire?

DEPUTY-PRESIDENT: The Minister's reference contains one question framed by the Minister and four questions framed by the International Labour Office. The purpose of the reference is to move the Board to answer the whole of the questions raised—that by the Minister and those by the International Labour Office.

Mr. SHERWOOD: Is it for the purpose of answering the Questionnaire only, or for bringing the recommendations of this Board into operation as well as answering the question?

DEPUTY-PRESIDENT: The motive of the questions is not discussed. The Minister raised one question, independent of the question raised by the International Labour Office. What the Minister intends to do when the Board has performed its functions we do not know, and we do not concern ourselves with. If there is an adjournment, the parties may be able to supply one another with copies of the Geneva pamphlet. How many copies of it have you got, Mr. Sherwood?

Mr. SHERWOOD: Only the one copy. Of course, the parties I represent would want to meet and discuss the cases outlined in the red pamphlet.

DEPUTY-PRESIDENT: I understand it would be very difficult for you to do that if you lent your single copy of the pamphlet.

Mr. CONNINGTON: We can obtain a copy of the red pamphlet, but are at a loss to know where a copy of the case against prohibition can be procured. Apparently it is the work of the same conference.

Mr. SHERWOOD: This is a pamphlet which has been prepared by the interests which would be adversely affected if there were a prohibition or restriction on the use of whitelead. This has gone out, of course, in the countries to which the Questionnaire has been sent.

Mr. CONNINGTON: I think we will get over the second difficulty. It will be dealt with, and, of course, the union will have the right to ask any question with regard thereto. We can procure a copy of the Questionnaire itself, and with that I think we will manage to get along all right, and trust to what we may pick up from the reading of the other pamphlet when the matter is brought before the Board.

DEPUTY-PRESIDENT: Naturally you are concerned with the preparation of your case. The Board is also concerned in making itself acquainted with the contents of the second pamphlet. If there are spare copies of that, at least one should be supplied to the Board.

Mr. SHERWOOD: I may say that this occurs in it:

"Their interest in the matter may be frankly stated, and is, indeed, obvious. If the use of white-lead were prohibited for painting there would be an end of the white-lead industry, because white-lead is nearly all used for paint."

Then it goes on, and there is a reference also to the lead industry in Australia.

DEPUTY-PRESIDENT: The pamphlet to which you refer is published with reference to the International Labour Conference, Geneva, 1921, "Item. 111B of the agenda. The prohibition of the use of white lead in painting." Its principal title is "Case against prohibition stated by the British white-lead makers." The pamphlet is published by White and Leonard, Bank Buildings, Ludgate Circus, London, or published by their authority. The publishing house is Weyman and Sons, Limited. The Board would be glad to have a copy of that pamphlet, if one can be made available to it. Meanwhile it will make a search in the State libraries to see if it can provide itself with a copy. What do you propose, as parties, to do in the way of submitting your cases to the Board? Who will begin?

Mr. SHERWOOD: I take it that Mr. Connington can best tell the Board the dangers arising from the use of white lead and why its use should be prohibited.

DEPUTY-PRESIDENT: The Board is agreeable to that, but, of course, the inquiry is instituted by the Board, and not by Mr. Connington.

Mr. CONNINGTON: Yes, and the Board has to determine the question irrespective of the interests of either side. We will allow the matter of procedure to be determined by the Board, and do our best to fall into line with whatever the Board may think best in that direction.

DEPUTY-PRESIDENT: The whole onus of the case will not be thrown upon you, Mr. Connington, and if you accept the position of plaintiff you will no doubt facilitate the work of the inquiry.

MR. CONNINGTON: We are prepared to accept that position and put forward our case upon those lines.

DEPUTY-PRESIDENT: If the Board does not think your case is wide enough it must pursue the inquiry independently of you, but I have no doubt you will give the Board very substantial assistance.

MR. CONNINGTON: We will certainly give the Board all the assistance we are able to give.

DEPUTY-PRESIDENT: Very well, then; it is arranged that Mr. Connington shall occupy the position of affirmant, and will open the case. Then I take it, Mr. Connington, you will affirm that white lead as used in the painting industry is so injurious to painters and other workmen engaged in the industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?

MR. CONNINGTON: That is so, Mr. Deputy-President.

DEPUTY-PRESIDENT: And you, Mr. Sherwood, will deny that position?

MR. SHERWOOD: Yes.

DEPUTY-PRESIDENT: What attitude will Mr. Phelps Richards adopt?

MR. PHELPS-RICHARDS: I am really only here watching the matter to some extent, to see whether we shall be affected at all. No doubt if the result of the inquiry should be that white lead is prohibited in painting we shall be to some extent affected; but more than probably in what I may call the affiliated industries, such as the master plumbers and the electrical trades, indirectly they are likely to be affected. As far as we are concerned, I do not propose to take any great active part, only in the way of assisting in the case of any evidence being brought forward in which we may be able to assist the Board. Of course, we have had some experience in the use of white lead for a number of years, but our experience does not go as far as to show it has been of a dangerous character.

DEPUTY-PRESIDENT: The master builders, I take it, have paid compensation under the Workmen's Compensation Act for injuries suffered by men through the use of white lead?

MR. PHELPS-RICHARDS: We do not know of any cases. Of course, the cases we do not know of in regard to the Workmen's Compensation Act would be in respect of accidents. So far I have not been able to gather that we have had any cases of men suffering from lead poisoning.

DEPUTY-PRESIDENT: That, of course, is evidence which ought to be made available to the Board. I will ask you, then, to state in some formal way the experience of the master builders as persons responsible for injuries suffered through the use of white lead by their employees in the building trade, as their employees. The Board remarks, Mr. Connington, that the employers in industries that are large users of paints are not very generally represented before it. There are many sections of the manufacturing industry that consume very great quantities of paint, such as the motor-car builders, car-body builders, carriage-makers generally, and makers of all kinds of wheeled vehicles, and the shipping industry. The Railway Commissioners must be very considerable consumers of paints also. We make the suggestion, therefore, that you should intimate to the Board which of those persons, in the light of your experience, should be informed of the operations of the Board in order that they may be, as it were, called to account for their experience, to the Board in the course of this inquiry. They will not be exactly in the position of respondents, but they may have overlooked or may not have noticed the advertisement that the Board has caused to be inserted in the newspapers, and it will be fair, perhaps, that they should be particularly informed that the inquiry has been opened and

will be proceeded with without undue delay. The advertisement that has been already issued is very brief, and is merely to the effect that the Board would open a public inquiry as to whether white lead as used in the painting industry is so injurious to painters and other workmen engaged in the industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments.

Mr. CONNINGTON: I think the union I represent will be able to give you practically all the information desired in that direction.

DEPUTY-PRESIDENT: That is what suggests itself to the Board. Your union ought to be familiar with the branches of industry in which paint is largely used.

Mr. CONNINGTON: In 90 per cent. of the cases—except in the case of shipping works where ship dockers and painters do the work—members of my union do the work practically throughout the State. Perhaps in carriage-building the union serves in all branches of the industry. So far as the Board thinks it necessary we will endeavour to bring a witness from the different branches of trade, so that you will have oral evidence as to the experience of that man in that trade.

DEPUTY-PRESIDENT: But even if your union does not represent all the different classes of employees in the different industries which use paints at all it will be nevertheless aware of the existence of separate classes, and it can, through you, inform the Board that those other classes, although not represented before the Board, will possibly be affected by what the Board may do.

Mr. CONNINGTON: I will give you that information at any time you desire to have it.

DEPUTY-PRESIDENT: We will be glad if you make that part of the case you propose to prepare, and also if you will not wait until we again meet you formally. We shall be glad if you will supply to the Secretary of the Board a list of the persons who should be specially notified that the inquiry is in progress. For instance, the Ship Dockers and Painters' Union should be informed. However, I am not speaking particularly with reference to organisations of employees, but particularly with reference to sections of manufacturing enterprise. You are in the habit of dealing with those people, as respondents. We want you to give us the benefit of your special experience and knowledge of the matter, in order that we may intimate to these people—we will not throw any burden or expense upon you—that they are concerned in the inquiry which has been opened.

Mr. CONNINGTON: We will do our best to collate the information and send it to the secretary.

Mr. SHERWOOD: The users of all different kinds of paint are included among my clients—

DEPUTY-PRESIDENT: If you represent them I do not want to pursue the matter any further; but from my note of the interests you represent it is not apparent that they will all be before us in the course of the inquiry.

Mr. SHERWOOD: No; they are more in the position of disinterested parties, in a way.

DEPUTY-PRESIDENT: Are the motor-car body builders disinterested in the use of white lead?

Mr. SHERWOOD: I know that we will be conferring with them in connection with this inquiry. We intend to show that a good substitute for white lead cannot be found by many of these large users, and that, of course, will be part of our case.

DEPUTY-PRESIDENT: Will you represent the shipping interests in that connection?

Mr. SHERWOOD: I do not know that we will be directly representing them. If it is found that we wish to call evidence we will probably go into

that. We have not yet had time to consider the matter fully, but it will be probably found we will have to call evidence in support of our case from the large users, to show that another substitute for white lead is not satisfactory. As far as they are concerned, there have been different reports made that substitutes used for white lead are unsatisfactory to the users. It has gone this far, that it requires, for instance, in big buildings, &c., a greater number of coatings of the substitute, than with white lead; so the Board will see they are interested in that way—they will have more work to do and bigger contracts.

DEPUTY-PRESIDENT: But the question is whether they will be represented before us here. That is the immediate question.

Mr. SHERWOOD: We will look at that side of the case.

DEPUTY-PRESIDENT: Then we may accept your assurance that you represent the manufacturing industry generally, if you tell us so.

Mr. SHERWOOD: Yes, we do represent the large users of paint. For instance, we are representing the Lead Manufacturers' Association.

DEPUTY-PRESIDENT: When I spoke of "manufacturing industry" I did not mean the lead manufacturing industry, but manufacturing enterprise generally.

Mr. SHERWOOD: We represent the Master Painters and Decorators Employers' Association, and in that Association of course there are many large users of paint. I take it a large part of our case will be to prove that substitutes for white lead are unsatisfactory, and necessarily we will have to call the users of white lead to prove that.

DEPUTY-PRESIDENT: Then the suggestion is that the Board shall resume its inquiry on Tuesday next.

Mr. CONNINGTON: In view of what Mr. Sherwood has said, I presume I need not supply the list? I do not want to interfere with Mr. Sherwood's—

DEPUTY-PRESIDENT: If the preparation of the list will not give you any great amount of trouble we will be glad to have it, because we can check, with its assistance, the area of representation which is controlled by Mr. Sherwood.

Mr. CONNINGTON: Very well, so long as it is clear we are not interfering with Mr. Sherwood, we will supply the list at an early date.

DEPUTY-PRESIDENT: The Board will not act upon the list you furnish it with until it again meets Mr. Sherwood in a public meeting. The proposal now is that the Board shall adjourn the inquiry until Tuesday next. I may say that I caused Professor Chapman to be communicated with yesterday in order that he might ascertain if he would be willing in the public interest to discuss the physiological aspects of lead-poisoning with the Board. I understand, from the reply, that the Professor has been subpoenaed by or has arranged with one of the parties to give evidence on the matter generally to the Board. Under those circumstances I propose to leave the calling of Professor Chapman to those concerned.

Mr. SHERWOOD: May I get the full reference to the British white paper?

DEPUTY-PRESIDENT: The paper is best identified by its official number, Cmd. 630. It is a report presented to the English Parliament by a Departmental Committee appointed to investigate the danger attendant upon the use of lead paints in the painting, enamelling, and varnishing of coaches and carriage. The date of the report is January, 1920. Mr. Routley informs me that there is another report by the Departmental Committee on the ". . . danger attendant in the use of lead paints for the painting of houses," but that report is not in the hands of the Board.

Mr. SHERWOOD: Is that the report issued in 1915? [*Handing document to the Deputy-President.*]

DEPUTY-PRESIDENT: Yes, this is the book to which Mr. Routley has referred. It is the report presented to the British Parliament by the Departmental Committee appointed to investigate the danger attendant on the use of paints containing white lead in the painting of buildings. Its official number is "Cd 7882," and its date is November, 1914. That is an important book, and should be referred to by Mr. Connington and others concerned, and will be referred to by the Board.

Mr. SHERWOOD: I do not know if it would be of advantage to the Board to know that in Queensland, as the result of several deputations, it was proposed by the Legislature to take some action in regard to passing through a bill; but we have not been able to get a great deal of information about it, and I do not know whether or not that bill has been prepared.

DEPUTY-PRESIDENT: If you wish to make yourself acquainted with what has occurred in Queensland in connection with the "Diagnosis, prophylaxis, and treatment of plumbic ocular neuritis amongst Queensland children"

Mr. SHERWOOD: It was mainly for the protection of children, I understand.

DEPUTY-PRESIDENT: For that the opinion of Dr. J. Lockart Gibson, M.D., Edin, M.R.C.S. Eng., Hon. Ophthalmic Surgeon to the Brisbane Hospital for Sick Children may be referred to in the Medical Journal of Australia, 8th September, 1917, at page 201. Some editorial comment on the theory of Dr. Gibson is contained in the issue of the Medical Journal of Australia, 28th July, 1917. The developments upon the propounding of that theory are referred to in the Medical Journal of Australia of 7th August, 1918. It appears that there was a conference between the Queensland Branch of the British Medical Association and the Master Painters' and Decorators' Association of Queensland, and an agreement was arrived at which affected or was intended to affect the use of white lead in the painting and decorating of buildings. That is the most recent information which is available at the present moment to the Board, but it is quite possible that something has been done in the way of regulating the use of white lead under the Factories Act of Queensland or by separate legislation in Queensland.

Mr. SHERWOOD: I understand they were going to take legislative action. I do not know if the Board has further information?

DEPUTY-PRESIDENT: The information at present available is that contained in the Medical Journals to which I have referred.

Mr. SHERWOOD: Our people, of course, say that Dr. Gibson is an enthusiast—

DEPUTY-PRESIDENT: Do not treat the matter too lightly, because the Medical Congress of 1920 adopted a resolution in these terms:

"That this Congress desires to express its profound dissatisfaction with the continued absence in this State of any regulations to enforce elementary, easy, and much needed methods of preventing disease. . . ."

"(2) The prohibition of the use of paint containing lead on verandah railings and other outdoor surfaces exposed to the hands of small children, from which cause every year there are contributed cases of paralysis and blindness, while in other children are sown the seeds of ultimately fatal disease of the kidneys."

That is recent, and I take it has the whole authority of the Congress.

Mr. SHERWOOD: We say that is not so. Of course, we have knowledge of that resolution.

DEPUTY-PRESIDENT: I am referring to the Medical Journal of Australia, published on 18th September, 1920, at page 302.

Mr. SHERWOOD: I understand that resolution was brought forward by Mr. Gibson and used to meet conditions which operated solely in Queensland.

For instance, the houses there as a rule are built on high blocks and have the railings around the verandahs; and the medical men from other States said it was not a matter which they knew very much about or were very deeply interested in.

DEPUTY-PRESIDENT: Are there not railings around houses in New South Wales?

Mr. SHERWOOD: Not to the same extent as in Queensland.

Mr. CONNINGTON: I may say, that with regard to that conference in Queensland, a number of doctors waited on the Government to urge that legislation be introduced to restrict the use of lead in paint. Dr. Thelander said that the adult workers in the blind institutions gave indications that in childhood they had been affected through lead. In France and America legislation was being introduced prohibiting the use of lead in paint for that reason. Apparently the doctor spoke with a knowledge of conditions in France and America.

DEPUTY-PRESIDENT: I merely referred to the determination of the Medical Congress as indicating that some weight must be attached to the suggestion that the use of white lead paint upon painted areas within the reach of children is regarded, at any rate in Queensland, as being dangerous. Whether it goes further than that, or not, is a matter to be inquired into in the course of this investigation.

(At 11.15 a.m. the Board adjourned until Tuesday, 28th instant, at 10 o'clock a.m.)

SECOND SITTING.

TUESDAY, 28 JUNE, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. WILLINGTON

MR. COOPER.

Mr. H. MANNING: I appear for those for whom Mr. Sherwood appeared at the last sitting of the Board.

Mr. CONNINGTON: I appear for the Operative Painters and Decorators' Union of Australia. It is my intention to call five operative painters to-day. Before going any further I have certain returns here, and merely wish to put the secretary of the union in the box and tender the returns, which can be put in as evidence later.

JAMES O'BRIEN, called, examined by Mr. CONNINGTON:—

1. What are you?—I am secretary of the Operative Painters and Decorators' Union.
2. I understand your union had a committee making investigations as to the effect of the use of lead in paints?—Yes.
3. Amongst other things, your union sent out circular letters to each member of the union asking him to state how long he had been at the trade, his age, whether he had felt the effects of lead poisoning, and, if so, for how long; and whether he had been under the attendance of a doctor?—That is right.
4. How many circulars did you send out?—Just over 1,000.

5. DEPUTY-PRESIDENT: Will you commence, Mr. Connington, by giving us statistics with respect to the number of painters in New South Wales, the number of members in your union, and the number of persons who are not members?

6. MR. CONNINGTON: How many members have you in your union?—We have 1,500, all of whom are members; and on the books there are over 2,000.

7. That is only in the house painting?—House and ship painting.

8. DEPUTY-PRESIDENT: There are two unions, are there not?—Only one.

9. MR. CONNINGTON: How many painters do you think there are altogether in New South Wales?—I have tried to get statistics, but have been unable to do so.

10. Can you say approximately?—No, I would not like to say.

11. DEPUTY-PRESIDENT: Will you call evidence with regard to the membership of the Ship Painters and Dockers' Union?

12. MR. CONNINGTON: Yes.

13. You cannot say how many painters there are in the State?—No.

14. Apart from the ship painters and dockers, can you say how many men are engaged in house and coach painting?—No, I cannot.

15. You have no idea?—No.

16. Do you know of any statistics?—No, I have tried to get them, but could not.

17. There are none available?—No.

18. This document is a circular sent out purely to members?—Yes.

19. And these other papers are the replies thereto, are they?—Yes.

20. MR. CONNINGTON: I tender those documents.

21. MR. MANNING: I was just wondering whether I ought not at this stage to make a suggestion for the guidance of the Board. The question which was set out in the notice I have had an opportunity of looking at, and it seems to me that what is aimed at there is the getting of information which would be of value to this Board, information as to the use to which white lead has been put in New South Wales, and whether its use in regard to pigments and paints has had a deleterious effect. I should not think for a moment it would be of very much assistance to the Board to merely get replies to a circular sent out by any investigating body to members, because primarily, I suppose, the replies would deal with complaints from which members suffered, and the object would be to show, I presume, that they were affected by the use of white lead in paint. But what they say in reply to a circular would not be of much assistance if one does not have the opportunity of finding out if their impression is correct. The facts elicited in that way would lose much of their value, or lose their value entirely, unless the gentlemen who speak to those facts are here to give us whatever information we choose to ask for. We might want to suggest, for instance—

22. MR. CONNINGTON: The suggestion is that this will be done.

23. MR. MANNING: I think these particulars are misleading as they stand, and they are regarded as cumbersome generally by committees investigating matters of this kind.

24. MR. CONNINGTON: We are not relying only on those.

25. MR. MANNING: I understand that. My suggestion is that these documents should not go in yet, because as they stand they are of no value. If the men come here who are alleged to be suffering from these complaints, then, of course, the returns as to those men can go in; each one can speak for himself, and give us any information we think desirable to put before the Board. As the returns stand, they merely encumber the list of exhibits. Suppose, for instance, they were to go in now, and a report were to be made and forwarded to Geneva, it is conceivable there may be adverse criticism there on the other side—I do not know what side it will be, but I suppose

there will be someone there kicking up a fuss against any suggestion, good, bad, or indifferent. The first thing he would point out would be that certain bundles of documents of this kind went in before the Board which sat to investigate this matter, while it is not apparent that the individuals who supplied the returns were available for cross-examination.

26. MR. CONNINGTON: You have not yet given me a chance of doing that.

27. MR. MANNING: I am not offering any opposition I am merely making a suggestion to the Board which I think is generally acted upon. For instance, in all these cases where a tribunal is not bound by the rules of evidence, it says, "That is so; we are not going to be hampered by rules of evidence," and very rightly so. But they say, "We must, at any rate, expose the source of our information, and in such a way that the source may be very carefully investigated and made subject to cross-examination." Otherwise the thing is of no value at all.

28. DEPUTY-PRESIDENT: I take it that the method Mr. Connington is adopting is that of putting before us, through Mr. O'Brien, the official opinion of the union as to the prevalence of disease. That will have been based upon individual opinion of members. The census is evidenced by those papers. What value will be attached to the sum of those opinions of members of the union is an open question, and one upon which you, of course, will be heard at any length desired by you; and it is a matter upon which the Board is not likely to make up its mind until it has practically completed the case. In the first instance, it is obvious the opinions of members of the union are unscientific opinions. They are opinions affected by sentiments and emotions—

29. MR. CONNINGTON: These returns I am putting in now are not opinions. These are statements of those who have suffered and have been under the care of doctors, with the names of the doctors attending them in each case.

30. MR. MANNING: "How long have you been at the trade?" is not a matter of opinion; that is a fact. "Have you felt the effects of lead poisoning?" is purely a matter of opinion.

31. DEPUTY-PRESIDENT: You see, Mr. Connington, if there be a record by a medical man, it is nevertheless a record by hearsay, it is not a record expressed by the doctor himself. It is a record expressed by the client himself, or the patient of the doctor.

32. MR. CONNINGTON: There is the name and address, the age, how long each member has been ailing—they are not matters of opinion. There is the question, "Have you ever felt the effects of lead poisoning?" which may or may not be a matter of opinion. Boiled down, we have 120 replies here by men who have been attended by doctors, giving the names and addresses of those doctors, so there is no question of a mere opinion in those cases.

33. MR. MANNING: The only value of that is the expression of opinion, and the answer.

34. DEPUTY-PRESIDENT: The patient is merely reporting the opinion of the doctor. There is much better evidence than that available, and that is the opinion of the doctor as expressed by himself. What check is there on the report of the patient upon the opinion given by the doctor? There may be a *bona-fide* expression of opinion by the patient, yet the doctor may be entirely misreported, even though his name be added. What Mr. Manning suggests is perfectly correct. We are not bound strictly by the rules of evidence, but, after all, they crystallise common sense; and the common sense of mankind is this, that the evidence of statements and actions which is given indirectly by those who have not witnessed them is always questionable.

35. MR. CONNINGTON: I see that, but there will always be that difficulty in inquiries of this character.

36. DEPUTY-PRESIDENT: The question comes back to what I suggested what would be the problem for Mr. Manning and ourselves: What value should be attached to an official opinion of the union based upon information of this kind?

37. MR. CONNINGTON: The Board has this safeguard, that there are 120 cases, and without them you would have lost some valuable information. You have the particulars of the cases, and we are in a position to say that any of them who desire to be called will be brought along to give oral evidence of the return they have given to the secretary of the union.

38. DEPUTY-PRESIDENT: But Mr. Manning's objection does not run to the statement by the secretary of the general opinion held by members of the union as to the prevalence of this particular disease called plumbism. Mr. Manning's objection is to these documents going in as exhibits; that is, the documents going in as, we will say, the evidence of Reginald Thomas Reeves—that is the man who has returned the first paper in this bundle. Perhaps we can content ourselves at the moment with the statement by the witness that he has collated so many hundred returns by members of his union, and that the effect of those returns is computed by himself as he will indicate.

39. MR. CONNINGTON: The returns have been collated, and I will hand in a copy for each member of the Board.

40. DEPUTY-PRESIDENT: And you will not put in as exhibits the actual returns.

41. MR. CONNINGTON: I will follow your wishes in that regard. We have collated the returns, and the men generally desire that their names should not be disclosed if it can be avoided.

42. DEPUTY-PRESIDENT: That is all the more reason why the papers should not go in as an exhibit.

43. MR. CONNINGTON: The men are not afraid of the members of the Board, or that they should have the information, because it is a guarantee of our *bona-fides*. In its way, it is information that can be checked, and—

44. MR. MANNING: This is merely a reprint—

45. MR. CONNINGTON: That is so, but on the face of it, it is *bona-fide* information. If there is any doubt about it—

46. MR. MANNING: We do not question that at all. I would not suggest that for a moment.

47. MR. CONNINGTON: You will understand and appreciate the difficulty, Mr. Deputy-President, of getting information to the Board except in this form, with the right to the parties to check it in any way they like.

48. DEPUTY-PRESIDENT: There is only one alternative, and that is the alternative which was taken by the Broken Hill inquiry: that is, an independent examination by a Medical Commission of all the persons who are within the area of risk, and the statement of that Commission on the authority of its scientific constitution with respect to the health of the men.

49. MR. CONNINGTON: That is so, and we submit this and say it is a *bona-fide* statement of the effect of white-lead, and that it is for the Board to say what value should be given to it—

50. DEPUTY-PRESIDENT: This is a tabulation of the independent papers—a tabulation in all detail of the independent papers.

51. MR. CONNINGTON: Yes. You have there the address of each man, while the name of the doctor is set out in each case, with the number of years each man has been at the trade.

52. DEPUTY-PRESIDENT: There are two groups of returns, the "positive" and the "negative." This is a tabulation of the "positive" returns. The "negative" returns are not tabulated.

53. Mr. CONNINGTON: In the negative, 180 cases, they have not suffered any ill effects from their trade. That is why we have not tabulated the others.

54. DEPUTY-PRESIDENT: Let us clear the ground. How many men have been asked for a return of this kind?—just over 1,000; to be accurate, 1,050.

55. How many indicated they have been affected by the disease plumbism?—

56. Mr. CONNINGTON: There were 120.

57. DEPUTY-PRESIDENT: And the names and conditions of the 120 have been put upon the paper you now tender?

58. Mr. CONNINGTON: That is so; and you will find the private addresses upon the original forms.

59. DEPUTY-PRESIDENT: And you desire that the name shall be excluded in each case?

60. Mr. CONNINGTON: The men have some feeling that their names should be withheld; it would be better if they were not known.

61. DEPUTY-PRESIDENT: Then the individuals had better be indicated by numbers—1, 2, 3, and so on—

62. Mr. CONNINGTON: Yes, and the names kept as an index.

63. Mr. MANNING: I have been reading somewhat upon this subject, and it is treated as a matter of vital importance by other Commissions which have been investigating matters of this kind to go very carefully into the cases which are alleged to have taken place. It has been pointed out in many cases that what was thought to be white-lead poisoning was not really white-lead poisoning at all; or in cases where white-lead poisoning was supposed to have occurred in a very severe form that it really was not white-lead poisoning that had assumed such dimensions at all—it was some other illness. It will be necessary for me, if evidence of that kind is to be gone into, to suggest that before any valuable use can be made of such evidence it will have to be sifted by cross-examination; and if out of 1,500 members, 120 or so say they were affected by lead poisoning of course 120 men would have to be cross-examined and asked to give the symptoms from which they suffered.

64. Mr. CONNINGTON: Or perhaps ten or fifteen of them, taken at random.

65. DEPUTY-PRESIDENT: The proposition Mr. Manning makes is a very serious one. Assume, for the purpose of argument, these men have suffered very largely from the effects of inhaling the fumes of turpentine, one of the individual ingredients of paint, how are you going to distinguish? Assume that the emanations of turpentine caused colic, how are you going to distinguish between the illness caused by turpentine and the disease caused by lead itself?

66. Mr. CONNINGTON: The only answer I can make is that 120 men are available if Mr. Manning desires to call them. The question of those men being here is one of expense to the organisation. We are prepared to bring them, but cannot afford to pay the expenses of 120 witnesses for the purposes of a public inquiry.

67. DEPUTY-PRESIDENT: The Board appreciates that difficulty quite well. This is not the first case of its kind the Board has had to deal with.

68. Mr. WILLINGTON: I notice there are 300 returns. Are we to assume that out of 1,050 to whom notices were sent there were only 300 replies and the proportion was 120 to 180?

69. Mr. CONNINGTON: Any one used to this sort of work will know that where 1,050 men have the right to exercise a vote it is very rarely that you will get more than a certain proportion of the men to exercise it. No doubt it is very true that the men are very loth indeed to admit they are suffering from lead poisoning or have felt the effects of it. In many of the books dealing with such matters the same thing is referred to—the

men have contended to the very last that they were not suffering from the effects of lead poisoning or had not shown any symptoms of it. I do not ask you to assume that out of the 300 who have sent in returns only 120 are suffering, or that that is at all a proper proportion, nor do I wish you to think there are only 120 out of 1,500 men who have suffered any effects from lead-poisoning.

70. DEPUTY-PRESIDENT: Then does that amount to anything more than this: The union forms a certain opinion which it has based upon a *bona-fide* inquiry that it has made, and that inquiry is limited to its definiteness by this, that, and the other condition?

71. Mr. CONNINGTON: It amounts to this, that 120 out of 1,500 people to put it at its worst for the union——

72. DEPUTY-PRESIDENT: I am not asking you as to Mr. Willington's question, but in respect to the objection taken by Mr. Manning. Has this document any value to anyone outside the executive of the union?

73. Mr. CONNINGTON: Yes, I contend it has this value: out of 1,050 men asked for a report, 120 have reported, and in other words about 10½ per cent. out of those communicated with have stated that they are suffering from the effects of lead poisoning. They give the names of the doctors who have attended to them. It is now open to the Board to call every one of those 120 men and the doctors, if it wishes.

74. DEPUTY-PRESIDENT: If it thinks it worth while; but you have to convince the Board that it is worth while. The whole question is as to the effectiveness of your methods. You may be conscientiously of opinion that these men have in certain circles suffered from lead-poisoning, but you have to demonstrate to the Board that your method has produced results of a reliable order.

75. Mr. CONNINGTON: At the worst, the case against us is that only 120 have notified us that they have suffered ill effects from lead poisoning. They give the period and the name of the practitioner who has certified to that effect. Suppose we call 120 persons and they give evidence to corroborate their statements here, and call the doctors who attended them, that would be conclusive evidence for the Board, I presume.

76. DEPUTY-PRESIDENT: It is going to be a very long way round, though, to the point at which we are aiming. If every man who is likely to be affected by lead and who regards himself as having been so affected, is to be called and cross-examined, and his doctor also called and cross-examined then I can see no end at all to the inquiry. It would be shorter for the Board to organise a committee of three doctors to examine all the men who are now affected with lead poisoning, than to examine the doctors as to what happened ten years ago to so-and-so.

77. Mr. CONNINGTON: In the absence of authority in that regard, we submit these returns. It is a long way to go about proving a simple fact, but still it is our way and the only way available to us at the time. If it is thought that, by the calling of perhaps eight or ten of these men, there is ground for supposing a large number of men are affected, I am sure the union would help any committee this Board would authorise, to the fullest extent of its power.

78. Mr. MANNING: The question is, does it prove anything?

79. DEPUTY-PRESIDENT: It comes to this, that this census of the members of the union has been fortified by conversations with their doctors.

80. Mr. CONNINGTON: And by the doctors certificates and the entries in the lodge books showing that doctors have prescribed for the particular ailments from which the men suffer.

81. DEPUTY-PRESIDENT: This is apparently one of the most difficult of ailments to diagnose correctly. It may be a painter goes to see his doctor and the doctor finds that he has symptoms of some specific disease, say,

Bright's Disease, the doctor says to him, "What are you by occupation?" The patient says, "I am a painter." The doctor immediately looks solemn and says, "Lead is probably the cause of your trouble." Suppose the conversation goes no further than that, that man can conscientiously send in a return to the union to say that he has suffered or is suffering from lead poisoning. If that doctor were compelled before a committee or an institution representing scientific authorities, to justify his opinion, he would not stop at that point. He would subject the man to a most searching scrutiny and to tests of various kinds. Unless we have also the evidence that the men were also subjected to what are regarded as effective tests for lead in medical circles, the mere expression of opinion that the ailment is probably the effect of lead is not going to carry us very far.

82. MR. CONNINGTON: I agree with that, and we will show later how much further we need press this particular—

83. DEPUTY-PRESIDENT: Perhaps, Mr. Manning, the best thing to do is to allow Mr. Connington to take from the witness the opinion that is held in the union circles with regard to the prevalence of disease, and to take references to the evidence which has been collated by the union in forming that opinion. We need not mark these documents as exhibits, but merely as having been referred to, and they can be held by the Board tentatively in that way.

84. MR. MANNING: May I suggest that instead of asking the secretary of the union the opinion held by members of his union, we might ask his opinion and then I can investigate that. If it is merely the opinion of the union, that is something one cannot further investigate.

84. DEPUTY-PRESIDENT: I really meant what you suggest. The secretary is really the gentleman who represents the intelligence or the intellection of the union, and he has, with the assistance of the union, collated evidence upon which he bases that opinion.

85. MR. CONNINGTON: It was my intention to put Mr. O'Brien in for the purpose of certifying to these documents in order to get them before the Board. I have five working painters in attendance, who wish to go back to work as soon as possible.

86. DEPUTY-PRESIDENT: Then we will regard these documents as a tabulation of the evidence you propose to call.

87. MR. MANNING: Will they be marked for identification?

88. DEPUTY-PRESIDENT: No. I will keep one copy, and that will identify it—if I keep a copy of the tabulation it will be a check.

89. MR. CONNINGTON: If anyone desires to check the tabulation with the papers, it can be done.

90. DEPUTY-PRESIDENT: Mr. Connington is merely giving us a written statement of the evidence he intends to call.

91. MR. WILLINGTON: Perhaps it is not relevant, but the question in my mind is as to what are the reasons why 120 have replied as being sufferers from lead poisoning. Is there any evidence of reason why the 180 have not been poisoned?

92. MR. CONNINGTON: I do not know what evidence I can possibly submit in support of that. It may be found that a painter has not been long at the trade; it may be others are constitutionally strong men; others may not have yet felt the effects of lead poisoning. It is admitted in all the works upon the subject that while every one is liable, naturally everyone is not affected.

93. MR. WILLINGTON: I may ask a further question about it later on.

(Witness retired.)

GEORGE PICKERING, called, examined by Mr. CONNINGTON:—

94. What is your name?—George Pickering. I live at 312 Victoria-street, Darlinghurst.

95. You are an operative painter, are you not?—Yes.

96. DEPUTY-PRESIDENT: What age are you?—I am just on my 50th year.

97. Mr. CONNINGTON: The Board may check his evidence for the present with his return—you will find him on the third leaf, third from the top.

98. How long have you been following the trade?—About thirty or thirty-three years.

99. DEPUTY-PRESIDENT: In what section of the trade have you been employed?—As a house painter. Only since I came to Australia have I worked on a boat, and that has been seldom.

100. The bulk of your work has been painting on a house or building?—Yes.

101. Mr. COOPER: On board ship it was only in the saloons and state-rooms?—We were in very confined parts, and that was why I turned it up.

102. It was only in the interior of a ship?—Yes.

103. You are not a member of the Dockers and Painters' Union?—No.

104. Mr. CONNINGTON: How long have you been in Australia?—Since 1910.

105. Have you had experience of painting in other countries?—In New Zealand.

106. Anywhere else?—Only in England. I have worked in England, New Zealand, and Australia.

107. DEPUTY-PRESIDENT: When did you leave England?—In 1909.

108. So that your experience in New Zealand was only short?—Yes.

109. Mr. CONNINGTON: Have you suffered in any way from the effects of lead poisoning?—Yes, I have suffered, and I believe I am suffering now.

110. How long after you commenced the trade did you first feel the symptoms?—That I cannot say. In about 1915 my joints commenced to swell, and I had aches in the kidneys and shoulders, and I had the cramps very much. Then I attended the hospitals.

111. That was while you were working in Australia?—Yes. Prior to that I did not feel any ill-effects—in England or in New Zealand.

112. And about 1915——?—That was the first time I felt the aches or pains.

113. And did you continue working?—No, I had to knock off.

114. You attended the hospitals, did you?—Yes, Sydney and Prince Alfred Hospitals.

115. From 1915 to the present time on how many occasions have you been attended by a doctor?—That I cannot say unless I refer to the notes.

116. Was it approximately half a dozen times?—Oh, more than that.

117. And if necessary you can tell us the places you attended?—Yes.

118. Can you also give the names of the doctors who attended you?—Yes, the best part of them.

119. In at least half a dozen cases?—Yes. I shall have to go into hospital, I expect, as soon as I can get away.

120. In your return you have mentioned three doctors. Is this your certificate of disablement?—No, it is a copy given to me to keep until I got compensation.

121. You made a claim under the Workmen's Compensation Act?—Yes.

122. And before receiving your money you had to get a certificate?—I had to go to Dr. Nash for him to certify as to whether or not I was leaded. Then I took that and served it on the Public Works Department. I had to leave the original there, and they gave me this copy to keep. I went to see Dr. Hamilton Marshall at the Sydney Hospital, who gave me admission to the hospital. I had no means of keeping out of hospital; I was bound to

go there as I was absolutely "broke." I thought this little amount of compensation, if I were entitled to it, would help me along.

120. You will swear that is an absolutely correct copy of the original certificate?—It was made in my presence by the chief clerk at the department—I think his name was Mr. Barber. Mr. Jack Stead was also there. From there I had to go to the Treasury Insurance Department, and they sent me to the Board of Health, where I was examined by a doctor. He certified that I was leaded, and I went into the hospital.

124. Mr. MANNING: I am going to make a further suggestion. This is Dr. Nash's certificate, and there is no reason to suppose there is anything wrong with it. The certificate states that the witness is suffering from plumbism and symptoms of disease, "Blue line," and "Anoemia." I do not know what that means, but I suppose it is "Anaemia."

125. Who wrote this out?—The chief clerk at the Public Works Department. He has the original of that copy.

126. Mr. MANNING: I am not going to make anything out of the "anoemia" instead of "anaemia," but I think the only valuable evidence on a subject of this kind would be that of Dr. Nash. It is essentially a subject one would expect to have dealt with by qualified medical experts. If the inquiry goes on along these lines it does not matter to me, because I will cross-examine each witness, and I think that in the end it will appear he does not know anything at all about it. What I do suggest is that it is a matter for a more skilled witness. I am not suggesting anything about Mr. Pickering, who I am sure believes everything he says, but it is obvious that in the end no importance can be attached to his evidence. This is the sequence of events; a patient tells the doctor, then the doctor tells the patient, and the patient tells the union secretary, who tells someone else in the Public Works Department, and then the witness comes here and tells the Board about it. The possibilities of error in transmission of information through those channels are infinite. I had in mind that Mr. Connington probably intended to deal with the matter on a scientific basis. I am only suggesting it now, because it seems to me that a great deal of time will be taken up with this kind of evidence, all subject to correction, and if the Board thinks I am wrong, I am willing to put up with it; but it seems to me that at the end the Board will be in possession of no further information.

127. DEPUTY-PRESIDENT: The Board cannot, and does not, depend entirely on the evidence Mr. Connington may bring. He is but one of the parties interested in this inquiry. He has, for the purpose of assisting the Board, taken the position of one who affirms that lead is dangerous to the painter. You must appreciate his dilemma. He has not any means whereby he can collect scientific information on this subject; that is, he has not the monetary means to enable him to do so. He must give unscientific information, that is, whose cases are being investigated, and whose interests are under inquiry at the present time—these must be given the satisfaction of informing the Board as to their conditions in the best available way, whatever way that may be.

128. Mr. MANNING: I quite appreciate Mr. Connington's position, because I read it in the records of what took place the last time the Board met. I was not, for instance, criticising Mr. Connington for a moment for not bringing medical evidence, but I was criticising the value of inexperienced evidence. If it is thought by the Board to be of any value, well and good. Take the ordinary case of an accident, a witness says a tram knocked him over, he went into the hospital and suffered—

129. Mr. CONNINGTON: In the other inquiries they did call the evidence of laymen, master painters, and those who had unscientific knowledge of the trade.

130. MR. MANNING: They were called to give their symptoms. The man himself is called to tell what are his symptoms, and then the doctor is called to say what those symptoms indicate. Suppose a man has a swollen groin or suffers from vomiting in the morning, &c., they send for him to see what it means. It may be an internal ulcer, or kidney trouble. It is for the doctor to tell us what it means. There, again, I am only making a suggestion. I am not suggesting this evidence should not go in so far as it is really an indication by this witness of what happened to him, as to what his symptoms were up to a certain point. He comes here in the best of good faith, I am sure, and he has endeavoured to tell the Commission what was, in his opinion, the matter with him. But the fault there is that he is not qualified.

131. DEPUTY-PRESIDENT: I think your objection is good, Mr. Manning, in so far as it is directed to the saving of time in the course of this inquiry, but I doubt if the Board would be justified in excluding the statement of opinions by representative unionists on the subject generally, up to a certain point. If that statement is going to be so long drawn out as to involve the Board in an inquiry into the private affairs of a member of the union, the Board must protect itself from that condition of things. I have not referred to my colleagues, but if they are in agreement with me I propose to suggest that Mr. Connington should give us shortly the gist of the case he has prepared, but I warn him it will be impracticable for the Board to listen first of all to the examination of an individual as to medical matters which can be only vouched for by a medical man. It is not likely the Board is going to be informed importantly by any opinions which may be expressed in examination or cross-examination on medical matters by witnesses.

132. MR. CONNINGTON: I have in mind that possibility, and for that reason I prepared the returns and only proposed calling five witnesses. I might quote scientific evidence from works upon the subject, the result of other commissions, and they are all unanimously agreed on the subject that white-lead is dangerous to health. If I quote what has happened in other countries, I can show the tendency everywhere has been to restrict, if not to prohibit, the use of white-lead. The onus, I respectfully submit, is upon my friend to show something different exists in Australia to what has been found in other countries.

133. DEPUTY-PRESIDENT: Then you might commence by establishing what is the condition of things in the painting trades in other countries. That will be very interesting information.

134. MR. CONNINGTON: The condition of the painting trade will be given to the Board by extracts taken from various works upon the subject. In England and elsewhere, according to these works, they have taken the evidence of operative painters and master coachmakers. I notice here that one master coachmaker said in his opinion it is not dangerous if proper precaution is taken.

135. DEPUTY-PRESIDENT: Mr. Manning does not object to that at all. He says that the opinion of the witness that whitelead is dangerous and has affected his health is evidence he will listen to without objection; but he says when the witness comes to discuss his symptoms he is not likely to give the Board any useful information. That line of inquiry is likely to delay the Board rather than to assist it.

136. MR. CONNINGTON: From the witnesses point of view it is most important the Board should have some knowledge of the troubles they suffer from in following their trade. For instance, the Board may feel it can reasonably recommend (as in other countries) that time be allowed for the washing of hands; that a separate room should be set aside for them to hang their clothes in; a room in which to eat their food—

137. DEPUTY-PRESIDENT: What has that to do with medical symptoms? If all painters are sick men, and you can show us that is so by calling a representative number of painters, then the Board, with the assistance of other scientific evidence and historical evidence, may come to the conclusion that sickness is due to lead, and make such recommendations as it thinks proper, having formed that opinion.

138. Mr. CONNINGTON: If through oral evidence we show the periods of sickness are extended, and that as a result the workmen are suffering loss of pay, and otherwise, may not it be very valuable information to the Board?

139. DEPUTY-PRESIDENT: But the connecting link is that the sickness must somehow or other be associated with lead, before regulations are made for restriction in the use of lead.

140. Mr. CONNINGTON: I will proceed with the witnesses, and when you have heard sufficient I shall not call any further evidence with regard to that.

141. You believe, from what the doctors have told you, that you are suffering from the effects of lead-poisoning?—Yes.

142. You have suffered from it, and are suffering to-day?—Yes.

143. DEPUTY-PRESIDENT: Is it not possible to get the original of that certificate? The Public Works Department could be subpoenaed to produce it and every other certificate they hold on account of painters employed by them.

144. Mr. MANNING: We would like to call Dr. Nash about these cases, at some date.

145. DEPUTY-PRESIDENT: If he is going to be called, he had better be called as the certifying surgeon under the Workmen's Compensation Act, and then he would be able to tell us, no doubt, how many painters have passed through his hands and applied to him for certificates, and how many succeeded in getting certificates from him that they are suffering from lead-poisoning.

146. Mr. CONNINGTON: Assuming we have that, is not the Board likely to have some evidence as to the effect of the disease on the men; does not that come within the purview of the Board's inquiry?

147. DEPUTY-PRESIDENT: Yes, certainly.

148. Mr. CONNINGTON: If the Board will accept the statement of the witness as *prima facie* evidence, personally I think everything a witness says can be corroborated later. If not, I would not have them here as witnesses. If the Board is prepared to accept the statement as *prima facie* representing the facts, then I will question the witness as to the effects upon his system and his health generally.

149. You have a statement here that you were under medical treatment from 11th March, 1915, and at different periods right up to 17th September—

150. Mr. MANNING: What are you referring to?

151. Mr. CONNINGTON: To the statement made by the witness.

152. You attended at the Sydney Hospital from 11th March, 1915, and were offered admission on the 18th?—Yes.

153. You saw Dr. Jeffrey on 29th April?—Yes.

154. All, you say, with regard to lead-poisoning?—Until Dr. Hamilton Marshall attended me I did not know it was lead-poisoning.

155. You interviewed at least half-a-dozen doctors during that period, perhaps more?—Yes, quite half-a-dozen.

156. How did the lead-poisoning affect you?—In all my joints. I was swelling in the knees, and I have a swelling there now. I have stiffness in every joint—the wrists, elbows, and shoulders, and pains across the back. If I stooped, sometimes it would take two or three minutes to straighten

up. At night-time occasionally I had to get out of bed because of severe cramps.

Cross-examined by Mr. MANNING:—

157. What year was that in?—Last year, I think—1920.

158. You say you got here in 1910?—Yes.

159. And had been carrying on your trade in England a good many years before that?—Yes.

160. How old were you when you first started the painting trade?—About 16 years.

161. You continued in England until 1910?—Yes, and then came out here.

162. Where were you employed in England?—In the west end of London.

163. At what sort of painting?—Inside and outside painting.

164. Were you working all the year round?—Yes, principally at that.

165. When you came out here did you know anyone here?—No.

166. You came out to a strange country?—Yes.

167. Did you work your passage out?—No.

168. You had some money of your own?—Yes.

169. Had you information about the climate in this country before you came out?—No. We went to New Zealand first; we were told it was a good country to go to.

170. Did you go with any other workmen?—I went with a navvy.

171. Did you come to the conclusion, before leaving England, this would be a more healthy climate to live in?—I did not trouble about that, because I was in good health myself; I came out because I thought there was a better chance of getting more money than in England.

172. You did not make any inquiries about the climate?—No.

173. You went to New Zealand, and then came to Australia?—Yes.

174. Did you find the climate in New Zealand did not agree with you?—No.

175. Did you make any inquiries about the Australian climate?—No; we just came over here because we thought there would be a wider scope.

176. You had been working as a painter about seventeen years before going to New Zealand?—Yes.

177. While you were working as a painter in England, you were perfectly healthy?—Yes; I never knew what it was to be ill until 1915.

178. You had spent seventeen years at it in England?—Yes.

179. And during that time you had done all kinds of painting?—Yes, washing off, stripping, burning off, enamelling, rubbing down, and everything.

180. You had gone into every kind of painting?—Yes, from the start to the finish.

181. I suppose you mixed your own paints?—Often.

182. And you used white-lead frequently?—Yes.

183. Did you handle it—get it on your hands?—No; I always avoided that. When we used white-lead stopping we had a little board to put it on with.

184. Did you follow that method after coming to Australia?—No, because you seldom get white-lead stopping here. Now and again you do, but not often.

185. What does “stopping” mean?—To stop holes in white work.

186. Did you not use it in mixing paints?—Yes.

187. You handled it then?—No; you would have it in a drum and get it out with a stick.

188. Was that the method you adopted in England also?—Yes.

189. What proportion of your time do you spend in using whitelead in its undiluted form, unmixed?—I could not exactly say. It is broken time,

working for different bosses; but most of the time I had to mix my own colours in England.

190. You say in England you mixed your own paints?—Yes. I have been colour-man on a lot of jobs here and have mixed my own paints.

191. You would go to a job in the morning and spend half-an-hour or so mixing paints, and then go and put it on the walls?—No; perhaps I would be in the paint-shop all day long, as I was at the Public Works Department.

192. So you were the man of all men who came most frequently into contact with whitelead?—Yes, on that particular job.

193. How long did that job last, months or years?—It may have been three or four months that I was colour-man in the printing office.

194. In what year was that?—Last year, 1920.

195. For what months of the year?—I was taken ill in February.

196. Before that you had spent five months on whitelead?—Yes, continually mixing it.

197. Every day and all day?—Yes, for eight and three-quarter hours.

198. And do you attribute the trouble you got into, the white lead poisoning which you alleged, to the fact that you were mixing white lead in those five months?—No, I might have had it before that.

199. You never consulted a doctor before?—I went to a doctor in 1915.

200. And in 1915 did you get any certificate?—No, nothing at all.

201. Was that the first time you went to a doctor?—Yes, in 1915.

202. Before going to him in 1915 had you been devoting any of your time exclusively, all day long, to mixing white lead, as at the Public Works Department?—Yes, I was up at Yanco as colour-man when they started on the works.

203. That meant you were all day in contact with white lead?—Yes. I suppose I was there about three months.

204. That was before 1915, was it?—Yes.

205. Were you colour-man anywhere else?—I went down to Jervis Bay, to the Naval College, and all day was knocking about with the colour.

206. Which means you were working with white lead all the time?—Yes. That would be in about 1913 or 1914.

207. How long were you there?—For about fifteen months. Then I got a rise to "walking foreman," and did not have to do anything with the lead.

208. Before you went to the Naval College, where you spent fifteen months, had you been colour-man anywhere else?—I have been working at so many jobs.

209. You had a good reputation; you were regarded practically as one of the best colour-men in the State?—No, I was not. I might happen to be on a job and could do it.

210. But they got to know you, did they not?—They did not give me any money for it.

211. But they looked upon you as something out of the ordinary?—No, I cannot say that. A lot of them would not take it on.

212. But they knew you were pretty hot stuff as a colour-man?—They knew that I was capable of doing it. Most men did not take it on because they did not like a colour-man's job.

213. You were always prepared to do a fair thing for your boss?—If he was fair to me.

214. I suggest they were not fair to you and put you on to the job of colour-man. That is what happened, was it not?—No. If I was asked, I would do it.

215. When you were willing, you would do it all day long?—Yes, if necessary.

216. Without being disloyal to your boss, if he had not put you on all that time—?—I would have been using the brush.

217. And would have been a lot better off in health?—I would have been spreading the white lead.

218. You mean you would have been painting?—Yes.

219. Do you realise the actual difference between mixing and painting?—When using the brush it is on a white surface on the outside of a house, and you cannot help making a very small spray from your brush; you are bound to get that. You cannot stand too far away from your work.

220. But when you were mixing paints you were also using turpentine in large quantities?—Yes.

221. At the Naval College you acted as colour-man very frequently?—Yes.

222. That was four years after you arrived from England. About how much of your time was spent as colour-man in those days?—I might mix up 1 cwt. of lead, and it might last for two or three days.

223. You say you spent a considerable part of your time at the College, as colour-man?—Yes. You see, it depended upon the number of men. Sometimes you would be doing lime-washing and then you would not be using white lead.

224. DEPUTY-PRESIDENT: Had you any personal preference for the work in the paint shop?—No. Sometimes you might be working for a small boss and only two of you would go to a job. The boss might send you up a couple of cwt. of white lead.

225. Mr. MANNING: There is a certain art in the mixing of paints, is there not?—No, but some people cannot match the colours. There is nothing to be proud of in it.

226. You have no special inclination to exercise that art?—No, I took it as part of my work. If two men are sent to a job, one has to do it; but I never jumped at it.

227. Mr. COOPER: Is it the practice of the Department to use all white lead?—No.

228. Half lead and half zinc?—I cannot say that. Sometimes they use all white lead, such as on a ceiling—

229. DEPUTY-PRESIDENT: Did you ever see any paint shops use dry white lead which had not been ground in oil?—Only in England we had that, and not often. That was used on front doors, and so on. I have not used it here.

230. Mr. MANNING: In England did you go in for dry rubbing down at all?—Yes, rubbing down with glass paper.

231. Did you do it frequently?—Every time you went to put a coat on a wall or door, or anything like that, you had to rub it down.

232. Were you doing that all the time, before leaving England?—Oh, yes.

233. And when you came out here?—Yes, you did the same thing.

234. Is it not possible to do that in water?—I do not see how you can do it. It has to be rubbed down dry.

235. Is it not frequently done in water?—No, not in house painting.

236. Do you not often rub down after the thing has been watered?—No. You might, if the door was varnished, use a bit of pumice stone in water.

237. But it is feasible, is it not?—But it is not done. The atmosphere seems to take the paint away, and you have to burn off.

238. But if you rub down in the wet there would be no dust flying about?—No; but you do not do it.

239. Speaking of the burning off, that is done when the paint gets thick on a door, for instance?—Not only thick; sometimes it may be blistered or cracked.

240. When there is some defect on the surface?—Yes.

241. You have had very much experience and you know that burning off is not always specified by any means. If you are going to burn off inside a house, it is not always specified?—Oh, no.

242. It is only on a special job?—Sometimes you have to use your own judgment as to whether or not it should be burned off.

243. But it is only where a special job is required to be done?—When the paint is in a bad state.

244. People who keep houses looked after reasonably do not require doors to be burnt off?—Some of them will have the paint burnt off.

245. But it is the exception rather than the rule, is it not?—Oh, yes.

246. You mentioned the matter of lead stopping. Is that the method used here?—Not often, as I have said.

247. You use putty, which is a harmless mixture?—Yes, that is so.

248. What you referred to as stopping, is putting it on the holes on wood-work, such as are caused by nails?—Yes. Where white lead is principally used is where the work is going to be rubbed down and has to be painted out. It would not do to put dark linseed oil putty in that case, because it would go through.

249. We can take what you state is correct, that it is only in very exceptional cases?—Yes.

250. Is the finish of the painting better here than in England; you have had experience of both?—You see some very good classes of work done here.

251. But taking it all round—just give us your opinion?—It is not carried out so well here as at home; there is a longer time spent on the work in England.

252. And in the old country they are not satisfied unless you give them a good deal of rubbing down?—You have to prepare your work well.

253. They are a bit more particular there?—Yes.

254. Here, the same amount of rubbing down is not required?—It would be required. They do not get time to do it the same way, but still you have to do it.

255. Mr. CONNINGTON: Do you do it, or not?—Yes, you have to, or you would get the sack quick and lively if your work did not turn out well.

256. Mr. MANNING: It was last year, was it not, you had your teeth extracted?—Yes.

257. What was the name of the first dentist you went to;—the first time your teeth were examined was at Prince Alfred Hospital in 1915, was it not?—Yes.

258. You have told us of the symptoms from which you suffered—swelling in the knees and joints, pains in the back, and so on?—That is right.

259. All your joints were affected with stiffness and swelling?—Yes.

260. In addition to that, you had pains in the back?—Yes.

261. And that practically sums up the whole lot of your symptoms?—Yes.

262. In 1915 your teeth were examined in the Prince Alfred Hospital?—Yes.

263. Is that the first time your teeth were ever examined?—Yes.

264. Did you, before that, use any anti-septics?—No, only a tooth brush.

265. You did not use any disinfectants or anti-septics;—did you consult Dr. Vallack?—He was the specialist I was under at the hospital.

266. And he recommended that all your teeth should be taken out?—No; he took me to Dr. Hawkins, who was the first dentist I saw. That was at Prince Alfred Hospital.

267. Do you know where we can find him?—No.

268. Do you know what are his initials?—No.

269. But you do know that his name was Dr. Hawkins?—Yes.

270. We know that Dr. Vallack was at the hospital; and you say he took you to Dr. Hawkins, who made that recommendation?—Yes.

271. Was Dr. Vallack with Dr. Hawkins when the recommendation was made?—He took me to the dentist's place.

272. And did Dr. Vallack hear the suggestion of Dr. Hawkins that the teeth should be taken out?—I could not say that.

273. They examined you together, in consultation?—Yes.

274. But you did not have your teeth out, did you?—I had the two front ones out.

275. You did not want to have all your teeth out?—No, I did not.

276. We know it is a thing people do not like, having them all taken out. You refused, perhaps wisely, to have them all out?—Yes, I did.

277. Mr. MANNING: And then you went on getting worse, did you?—I kept on having spells of these aches and pains, and I had to keep on knocking off work.

278. Dr. Hawkins told you that they were septic?—No; Dr. Vallick told me I was septic.

279. He told you that after examining your mouth?—Yes.

280. And then Dr. Hawkins said you would have to have them all out?—Yes.

281. And the result was you had two out?—Yes.

282. I suppose you do not know what teeth they were?—He called them Incisors; they were the two front teeth.

283. Then you went on being examined by various doctors from then on until 1920?—Yes.

284. I suppose this information about your teeth came as a bit of a shock to you when you were first told you would have to lose all your teeth?—Yes, it did.

285. I suppose that was one of the first things you told the doctors afterwards?—No; I did not tell them anything at all about that.

286. I suppose you did not want to let them know, because they would send you off to the dentist again?—It came at the finish; Dr. Upton advised me to go.

287. But in the meantime you did not tell the doctors what Dr. Vallick told you?—No, because I did not want to lose my teeth. They examined me in the office.

288. By that time you had begun to look upon the medical profession as a peculiar lot, I suppose?—I had begun to think that they were quite right.

289. And in 1920 you thought you would let out your secret?—No; they found it out.

290. What happened when they found out;—did they examine your mouth again?—Yes.

291. What was that?—I think his name was Dr. Upton.

292. He examined your mouth?—Yes; that was in the hospital.

293. That was in 1920?—Yes.

294. What month in 1920 was that?—I think it was the 18th of the month.

295. But about what month?—I think it would be about the same month as I got the certificate.

296. That is February?—Yes; I think it was about the 18th February, but I would not be quite sure.

297. This is dated 11th February?—Yes, and I think about a week after that I was admitted into the Sydney Hospital.

298. And it was when you were admitted into the Sydney Hospital that this man discovered your teeth?—Yes, in the course of the examination.

299. Mr. MANNING: If, Mr. Chairman, you will look at the certificate you will see that it is dated 11th February; you will see the diagnosis there, and what happened to this case up to that date.

300. DEPUTY-PRESIDENT: The certificate is: "Dr. Nash examined George Pickering personally on the 11th February, and was satisfied that he was suffering from plumbism." The leading symptoms of the disease, as indicated by the doctor, are "Blue line on gums, anomia, muscle atrophy."

301. Mr. MANNING: And I draw particular attention to the date. At that time it was a secret.

302. From that time on has your health improved at all?—No.

303. It has got worse?—No, it has not got worse. At present my right leg is swollen.

304. You are not better?—No.

305. Are you still suffering from anaemia?—I do not know what that is.

306. Loss of blood, or anything like that?—No.

307. You say you do not know what anaemia is?—No.

308. Anyway, you will be available at any time, if you are wanted to be examined?—Yes, I do not mind being examined.

Re-examined by Mr. CONNINGTON:—

309. Mr. Manning referred you to the certificate of Dr. Nash in 1920. Was that the first occasion you visited Dr. Nash?—Yes, that was the first time I had seen Dr. Nash.

310. The first time you saw him was when he gave you that certificate?—Yes.

311. And the only time?—No.

312. But that was the first occasion?—Yes.

313. You are quite sure of that?—Yes.

(Witness retired.)

CHARLES WILLIAM ROBERT LOW, sworn, examined by

Mr. CONNINGTON:—

314. What is your address?—45 Goodsell-street, Newtown.

315. What is your age?—37 or 38. I was born in 1884.

316. How long have you been following the painting trade?—About twenty years.

317. Has all your experience been gained in Australia?—And Tasmania. I am a native of Tasmania. I have been in Sydney since the end of 1910.

318. You have replied to that circular sent out by the union?—Yes.

319. Have you suffered any ill-effects from lead poisoning?—I have.

320. When, in your opinion, did the symptoms first suggest themselves?—Of course, I did not know that I was suffering with lead poisoning until I was examined by a medical officer, and he told me that I was. Previously to that I had had pains in my legs and the back, and that, but I thought it was only rheumatism or something of that kind. It had not taken me severely. I felt off-colour at different times. At last I went down completely with severe cramps in the legs, and was absolutely bed-ridden. I could neither stand up nor sit down, nor lie down, without cramps and suffering intense agony. Then the lodge doctor was called in and he examined me and said that I had lead poisoning.

321. What was the doctor's name?—Dr. Harris was my first lodge doctor.

322. Did you visit any other doctors?—Then I went to Dr. Nash, and he gave me a thorough examination. I think I was somewhere about an hour and a half under examination of every part of my body. I told him my doctor said I had lead poisoning, and that I came to be examined by him to get compensation. He put me under a thorough examination, and he gave me a certificate that I was suffering with lead poisoning, entitling me to compensation.

323. Mr. MANNING: Have you got that certificate?—No, I have not. I had to give that certificate to the insurance, which was the Master Plumbers' Association. I was working for a master plumber at the time.

324. Mr. CONNINGTON: We will get that.

325. Anyhow, you swear you got that certificate?—Yes, and they took that certificate from me.

326. Did you see any other doctors besides Dr. Nash and Dr. Harris?—Dr. Loxton was my last doctor.

327. When did you visit Dr. Loxton?—I have been visiting him at different times. I have not been there since Christmas; I have not seen him on it since Christmas.

328. Since you received the certificate from Dr. Nash, have you been to Dr. Loxton?—Yes, and I have been taking medicine. I have the prescription in my book. I have a letter here where he says I will have to leave my trade through lead-poisoning.

329. And the three doctors you visited all say the same, that you are suffering from lead poisoning?—Yes.

330. Have you got the letter with you?—Yes, I produce the letter from Dr. Loxton, stating that I would have to leave my trade on account of lead-poisoning. He recommended wharf-labouring or somewhere where I would be in the open air, and on manual labour, to work it out of my system, he said.

331. At the present time do you feel any ill-effects?—Yes, off and on. I may be all right for two or three weeks, or perhaps a month, or a couple of months, and all of a sudden I go down with it again after I am back at the trade, which I have been.

332. What do you mean by going down;—do you have to knock off work?—Yes. I get my legs cramped up again.

333. Any other of your joints?—Not now. In the first place it was in every joint of my body, and in the bone of my right hand, but especially in the legs and in the feet.

334. But you do not feel any soreness now in the other joints outside of the knees?—Not nearly so bad; just now and again. I am recovering again very much, compared with what I have been suffering.

335. Are you still following the painting trade?—I have not been doing very much work in lead. I have been keeping away from that.

336. How do you manage to keep away from it and still follow your profession?—I have been doing paper-hanging and decorating right through. Before, when I was working, and went down with it, I was charge hand, and I had to mix colours, and look after the men with their colours, and everything, and do all kinds of painting.

337. As regards the operation of rubbing down—is much of that done in Australia, or is it easy to do it?—Yes, certainly, you must rub down to get a finish on your work.

338. Dry rubbing down?—Yes.

339. Do you use glass paper?—Yes, you use glass paper for dry rubbing down.

340. With regard to inside work and outside work, have you done both?—Yes, every class of work in the painting trade.

341. And the paint that you have been using inside and outside, did it always contain lead?—Not always. I have often used non-poisonous paints.

342. Have you used lead paint for inside work?—Yes.

343. And you have used non-poisonous paints, you say?—Yes.

344. That is you have used both?—Yes.

345. With regard to inside and outside work, from your point of view is one less dangerous than the other?—No, I do not think so. I do not think there is much difference where you come in contact with lead. In working

inside a room you are enclosed in it, and, of course, the fumes are lying about, but when you are outside you are working quicker and you get more paint over you, which you cannot avoid, by the fine spray which comes off your brush, and that penetrates into your skin just the same as the lead. You are perspiring, and your pores are open, and that allows the paint to go into the skin.

346. In your experience is lead always used in the paint which is put on the outside surfaces?—Pretty well on outside work, it is here.

347. Generally speaking, the lead paint is used outside?—Yes.

348. For inside work, is the volume of non-poisonous paints extensive?—You mean, is the use of non-poisonous paints extensive? Well, in some cases, with some masters it is, and with other masters you may be working for it is not.

349. During the last five years, with regard to inside work and that done by you, which has been in the majority, the non-poisonous or the lead paint?—The non-poisonous, during the last five years.

350. Would you say that the use of non-poisonous paints is increasing?—I believe it is.

351. From your point of view, apart altogether from the sickness which you have experienced, is it any more pleasant to work with non-poisonous paints than with lead paints?—I cannot say that there is much difference in the working in that respect, but I know that I always prefer to work with a non-poisonous paint than to work with a lead paint.

352. Why is that?—You always seem to be working with a better will. You know that you are not receiving the lead into your system.

353. I suppose the absence of the danger makes you feel more comfortable in your position?—Yes; it is just the same as if you are standing on a high scaffold, you work more carefully then than you would if you were standing on the ground.

354. As to your state of health and all that you have told us of your visits to the doctors, are you prepared, if it is necessary, to submit to any examination which is suggested?—Yes.

355. MR. CONNINGTON: I was going to ask the witness a question, Mr. Chairman, but it is purely a matter of opinion. The witness has worked with and has mixed with hundreds of other men, and I was wondering whether it would be of any value to the Board if I asked him a question as to his opinion, whether many persons who are following the occupation of painting suffer from lead poisoning or the effects of lead poisoning.

356. DEPUTY-PRESIDENT: I have no objection to that question at all.

357. MR. CONNINGTON: As a professional painter, working with other painters, would you say that the occupation is a healthy one or an unhealthy one?—I say it is an unhealthy one, and I am sorry that I ever took it up. When I first started I had the option of being a carpenter or a painter. I loved painting and decorating as a youth, and I took that up, whereas my other brothers were carpenters. I would not go into the carpentering trade.

358. When you are having dinner, do the painters ever discuss trade subjects?—Do you mean about the trade?

359. Whether it is a healthy or an unhealthy trade; anything at all with regard to the trade?—We talk about different things, about different jobs, and so on.

360. And you compare it with other trades?—Yes; we get different ideas from one another. Say one did a certain job, another asks about it, and so on. I have learnt a good deal from the conversations.

361. Have you ever discussed such things as health matters?—Yes. You may be working with a man, and the next day he does not turn up. You do not know why it is, that it is lead or anything. You ask him what was up and he says, "I felt off-colour and did not come to work." You would not

know what it was. It is the same with myself. I have been off myself; I have just felt off-colour, not well, and have not felt inclined to come to work. We did not know what it was at that time, but since then I have been told I had lead-poisoning, and I have noticed it was the same symptoms then as I have now.

362. DEPUTY-PRESIDENT: You may put your questions as plainly as you like, Mr. Connington. If there is a considerable condition of alarm in the minds of painters, then the sooner the Board is informed of that fact the better.

363. MR. CONNINGTON: With regard to painters generally, is there a feeling of alarm with regard to the use of lead in paint?—I believe there is.

364. Is there a general feeling amongst them that they would like its abolition?—Yes, I can honestly say that.

365. If the use of lead is prohibited will the public, in your opinion, suffer by having to pay a higher cost for inferior work?—I do not believe they will get inferior work by doing away with white lead. I believe they will receive better work, because I believe there are materials which can be used which are equally as good as, if not better than, white lead.

366. Mention one of them?—There is Keystona, for one.

367. That is regarded as amongst the best of the non-poisonous paints?—Yes.

368. Have you worked with Keystona?—Yes.

369. As the result of your experience, as compared with lead painting, what would you say with regard to Keystona?—You can do a better job with it.

370. The cost will be much greater, will it not?—No, I do not think it would be as much.

371. Why?—Because it has a greater covering power than white-lead.

372. It is alleged that zinc painting will not withstand the weather to the same extent as lead paint?—Well, in some cases it will stand better.

373. That is, near the salt water?—Yes, near the salt air.

374. I suppose in other cases it will not stand so well?—That is so.

375. Is there any paint that you could recommend or suggest to take the place of lead paint for outside work which would be quite as durable and resistant to climatic conditions?—Well, I do not know. There is zinc oxide which is used in France, I believe, where white-lead is absolutely proscribed.

376. But you have had no personal experience of that?—No.

377. I mean, paints coming under your experience for outside work?—I cannot say. I have not used much for outside work.

378. But for inside work you have used a lot of non-poisonous paints?—Yes.

379. And if it is necessary to go into detail, you can answer any question in that regard?—Yes.

Cross-examined by Mr. MANNING:—

380. On the subject of the details, have you ever known zinc oxide to be used here for outside paints?—No, not for outside.

381. You say you believe it is used in France?—Yes.

382. Do you read up these subjects at all?—Sometimes I read up a little.

383. But you have no personal knowledge of the use of zinc oxide?—No.

384. Whereabouts have you read this; in what publication?—In the painters' publications.

385. In the Painters' Journal?—Yes, and in English books that I have seen on painting and decorating at different times.

386. Can you mention any substitute for outside paint, other than zinc oxide?—You mean as a white basis?

387. Yes, as a substitute for white lead?—Of course, that is a white basis. No, I cannot at present.

388. So there is one that you think of, and that is zinc oxide?—Yes.
389. You have never used zinc yourself?—No, not to mix it up pure.
390. Have you ever put it on?—I have used the paint which is termed white lead and zinc, made up by Major Brothers and others.
391. Have you ever used zinc oxide as a substitute for white lead?—No.
392. Have you ever known it to be used in paints as a substitute for white lead?—Not here.
393. So you know as a fact that it has never been used here?—I cannot say it is a fact that it has never been used. It may have been.
394. The only paint you have ever known to be used for outside use here is a paint with a white lead basis?—Yes.
395. With regard to inside paints, you have mentioned this Keystona?—Yes.
396. You mentioned that as a substitute for the paint with a white lead basis?—Yes.
397. Do you know of any other substitutes beyond Keystona?—There are a lot of patent brands that are called non-poisonous.
398. Have you ever used any of them?—I have used them, but I have never found them as good as the Keystona.
399. Would it be correct to say that you have passed the others out?—Yes.
400. And you have stuck to Keystona?—Yes.
401. Keystona is the only one that you think is any good as a substitute?—That is right.
402. And that is what is called lithopon, is it not?—I do not know.
403. Keystona is for interior use?—Yes.
404. Is that based on a lithopon?—I could not say what it is based on. There is supposed to be no white-lead in it.
405. Have you made any tests with that Keystona?—No.
406. All you have done is to put it on?—That is all.
407. So that the opinion you are expressing on the subject is based on what you see of the surface after you have put it on?—That is right.
408. One of the most frequent causes of complaint from people whose places are painted is with reference to the space of time the paint lasts?—Yes, and of the finish when it is done.
409. They like it glossed a bit, too?—Yes.
410. You cannot say whether you have ever seen it after you have put it on. You judge by the surface after you have actually finished the painting?—I have seen work after it has been done.
411. How long after?—I cannot say.
412. Can you mention one case where you have seen the Keystona paint over a month after you have put it on?—I have seen it more than that time afterwards, but I cannot mention a particular place.
413. Where and how often?—I could not say.
414. How much more than a month afterwards have you seen it in any one case?—I do not like to state a thing that I cannot say exactly.
415. May I take it then that you cannot recall an instance where you have seen the paint more than a month after it had been put on?—I have seen it. I could take you to places where the Keystona is used, but I cannot bring to mind the exact particulars.
416. In the places where you have seen it, how much more than a month afterwards have you seen it?—I have seen work done with Keystona six months afterwards.
417. Are you sure of that?—Yes.
418. Have you seen it more than six months afterwards?—Yes.
419. How much more?—A couple of years.
420. I suppose you can tell us where?—There is a place at Manly. I cannot think of the name or the address of the place exactly.

421. Manly will do. Perhaps you can tell us later on where it is, if we want to know?—Yes. I can tell you the name of the man I did the work for in that district. It was Mr. Nunn.

422. Can you tell me how long it was after that paint was put on that you saw it? What was the longest period that elapsed after it was put on? Can you say that it was as long as two years after it was put on that you saw it?—Yes, it was about that.

423. Are you sure of that?—Yes.

424. When was it put on?—It was put on before the war.

425. And when did you see it?—I could not state the dates that I saw it, but when I have been there working and have gone back again to do more work I have seen it.

426. As a matter of fact, are you prepared to tell this Commission that there was not another coat of paint put on that door, or whatever it was, in the interval between your putting it on and your seeing it two years afterwards?—I could not swear to that.

427. So that you are unable to say whether there was another coat of paint put on or not?—No, I only know there was Keystona used there.

428. That is the only instance you know of where you have seen Keystona as long as two years after it was put on?—No, not the only one.

429. Do you know of any other?—I cannot bring them to memory, because I have not taken particular notice. I have used Keystona such a lot of times and gone back and done the rooms up again, never bothering about them.

430. Do you know of a single case where you saw Keystona two years afterwards and you are able to say that a coat of paint was not put on in the meantime?—That is taking it very fine, because a person cannot take an oath that a thing has not been touched when he has not been there between to see it.

431. You never made a test yourself?—No.

432. Mr. CONNINGTON: Do you believe that any was put on in the meantime?—I do not believe there was, but I cannot swear to it. I have not made a personal test of it to that extent. I have not made a personal test of it to see how long it would stand.

433. Mr. MANNING: What age were you when you went into the painting trade?—About 16.

434. And you have been engaged in it ever since?—Yes.

435. When you first came into it, what class of painting did you go in for?—House-painting and paper-hanging.

436. I think you said you are 37 or 38 now?—Yes.

437. During that period have you suffered from any illnesses?—No.

438. None at all?—No, I have never had anything more than a cold; I have never had anything but a cold up to this time that I went down.

439. Give me the date when you first went down?—I cannot give it to you exactly, but it was somewhere about the 18th March, 1919.

440. In March, 1919, you first became ill?—I see that I had the same prescription in August.

441. What is the book you are looking at?—My medical lodge book.

442. Is there anything private in it that you would prefer me not to see?—No [*handing book to Mr. Manning*].

443. There is no diagnosis in it?—No.

444. Then August, 1919, was the first time you got a prescription?—Yes, I think it was about that time.

445. What were your symptoms then?—Intense pains in the joints.

446. In all the joints?—Yes.

447. Knees and elbows?—Yes, all over my body, and dizziness in my head.

448. Whereabouts were you working for the year prior to that?—I had been working for one man all the time.

449. Whereabouts?—Out Darling Point and Potts Point way, and all round Sydney.

450. On inside or outside work?—Both inside and out.

451. Were you working continuously for any length of period?—Yes.

452. Any class of work in particular?—Sometimes I was doing a fair class of work, and at other times just general work.

453. Were you put on to mixing paints?—Yes; I was in charge pretty well all the time.

454. And I take it the man in charge generally does the mixing?—Yes.

455. That is the most important part of it?—Yes.

456. So that you devoted the whole of your time practically to mixing?—You do not devote the whole of your time to it. You have perhaps only two or three men on, and it does not take you many minutes to mix a pot of colour for the men.

457. You do the mixing, and they put it on?—Yes.

458. And when you have finished the mixing you go and put it on, too?—Yes.

459. You were the colour man?—That is right.

460. As colour man you would be constantly using the white-lead before it was mixed?—Yes.

461. Mr. CONNINGTON: How long would you be using it?—You are using white-lead the whole time you are painting.

462. Mr. MANNING: How long would you be mixing on the job?—To mix up a pot of colour may take you only about ten minutes or half an hour.

463. And the other men during that time would be painting?—Yes.

464. When you were mixing the white-lead you would also be using turpentine?—Not always.

465. But that would be part of the mixing?—No, you are not using it always, by a long way. Some colours do not have turps in them at all.

466. I understood you to say that when you were putting on the paint you noticed the fumes from it?—I never said anything about the fumes.

467. Did not you say something about inhaling the fumes?—Yes, the fumes inside a room.

468. That would be when you were putting the paint on inside?—Yes.

469. That would be the fumes of the white lead?—When you have inside work you use more turps than you do outside.

470. What you would be inhaling would be the fumes of the white lead, would it not?—Yes, to a great extent I believe so.

471. Do you, or do you not, know that the fumes you were inhaling were fumes from the white lead?—Yes.

472. Were they the same fumes that you would inhale inside as you would inhale outside when you were mixing?—Yes; mixing is more often done inside.

473. I mean, during the mixing; it would be the same fumes you would inhale when you were putting it on as when you were mixing?—Certainly.

474. Do you not know as a fact that you cannot possibly get any fumes from white lead when you are putting the paint on in its mixed form?—I do not know that. You can get a spray of paint all over your body.

475. I am not talking about a spray of paint; I am on the question of fumes now. You say that it is not turpentine that has affected you at all, but that it is the white lead?—Well, the doctor says it is white lead. I do not know if turpentine puts the heavy blue or pink mark round your gums and makes the peculiar mark in your eyes.

476. Mr. CONNINGTON: Have you those marks?—Yes. I do not know if turps does that or not. I do not say that turps will not help—because it certainly does—to make it spray more. Turps put into white lead makes it spray more, and makes a finer spray. It is more injurious to use a white lead flat paint than it is to use an oil flat.

477. Mr. MANNING: Then you think it is the mixture; it is not the lead itself that is injurious?—It is the lead which is injurious, but it is the form that it is mixed into that makes it more injurious.

478. Is there any other form in which white-lead is injurious?—I do not know. I do not know of any other trades.

479. Do you think it is non-injurious in any other form?—No; I believe it is injurious in any form at all where you are handling it.

480. Take rubbing down; is it injurious in that form?—Certainly. Lead is injurious in any form in which you can bring it into the body.

481. How is it injurious in the rubbing down?—There is the dry dust coming off from rubbing down.

482. Supposing you are rubbing down in the wet?—Then it does not allow the particles to float about and stick on to the skin and be absorbed by the perspiration into the body.

483. Then if you rub down in the wet you think it would be all right?—I do not think it would be all right. I am down on lead, anyway.

484. You have a natural prejudice against it?—Certainly I have, and I have a good cause for it.

485. Mr. CONNINGTON: What is the practice, dry or wet rubbing down?—Dry is the practice.

486. Mr. MANNING: But you often rub down in the wet?—Not very often.

487. But you have known it to be done?—Yes.

488. You do not see any objection to it being done, do you?—No. To get certain classes of work you use different methods. One boss will say, "Rub that door down in wet with water and pumice stone," and another will say, "Give it a rub over with a piece of coarse sand-paper." One is the right way and one is wrong.

489. In your opinion, the rubbing down wet is just as good as the sand-paper method?—In some cases it is better than sand-paper for effect only.

490. There is no objection to the rubbing down in the wet as a substitute to the rubbing down with the sand-paper?—I am only speaking of rubbing down old work which has not been painted for some considerable time.

491. I am speaking of that, too. Cannot you rub that down in the wet just as you can with the dry?—That is what you can rub down wet. You cannot rub down fresh paint wet.

492. You can burn off the fresh paint?—What we term freshly painted is this: you have an old door, and you rub that down to get off the knots and small blisters; if it is very badly blistered you burn it off, then you sand-paper it, and then you give it a coat of paint; then you rub that down with a sand-paper to take off the little lumps and to get a perfectly good surface. You keep on coating it and running it down until you get your finished surface.

493. By the time you have burnt it off you have burnt the paint completely off?—You do not burn it all off, or you will burn the wood away.

494. There will be some left on it?—To a great extent there is.

495. Cannot that be rubbed down in the wet after it has been rubbed off?—After you burn the door off you have to use water and pumice stone.

496. And sometimes you can rub it down in the wet without having it burnt off first?—Yes.

497. Have you ever used any safeguards against lead poisoning at all?—No.

498. You have never taken any precautions?—No.

499. You have got it on your hands and on your clothes?—I have always been clean personally, not getting any more paint on me than I could help, and always washing my hands and face before eating my meals.

500. Do you smoke much?—Latey. I do not smoke much; it is only the last six or seven—

501. Do you smoke while you are working?—Yes.

502. Cigarettes?—Yes.

503. Frequently?—I cannot say frequently, because I am a very light smoker.

504. You came to the point where you got ill in August, 1919, and you went to see a doctor. Which doctor was it you first went to see?—Dr. Harris, my lodge doctor.

505. Did you go to any other doctor after him?—Then I went to Dr. Nash. Then Dr. Harris gave up, and Dr. Loxton took his practice, and I went under Dr. Loxton.

506. Dr. Nash examined you?—Yes.

507. What date was it when he examined you?—I could not tell you the date. I never kept a record.

508. Was it before or after Dr. Loxton came on the scene?—It was approximately about four months before I got that paper from Dr. Loxton.

509. This is dated 15th August, 1919, so it would be the 15th March, 1919?—I would not say it was the 15th March, but it was somewhere about that; it was approximately about four months before.

510. When you went to see Dr. Loxton did you tell him you had seen Dr. Nash?—Yes.

511. Did you tell him what Dr. Nash had told you?—When I saw Dr. Harris first, he told me that I had lead-poisoning and that I could not go to work. Then I went to inquire about the compensation, knowing that it came under the Compensation Act. Then I went to Dr. Nash.

512. When you went to Dr. Harris, did he ask you what you were working at?—He knew that without asking.

513. Was he the doctor for the Painters' Union?—He was my lodge doctor, and he knew what trade I was at.

514. There are a good many painters, I suppose, belonging to the lodge?—I do not know that.

515. Do you know of any others?—No, I cannot say that I do.

516. You saw Dr. Harris, and he knew what your occupation was?—Yes.

517. He thereupon examined you?—He examined me.

518. And do you say he gave you a certificate?—Yes, for my lodge, that it was lead-poisoning.

519. And you do not know where that certificate is?—It is in the possession of the lodge.

520. Did Dr. Harris make any minute examination of you?—He examined my gums.

521. Anything else?—No.

522. He did not examine the rest of your body?—No.

523. He just looked at your gums?—And I showed him where my knees were swollen up, and he looked at them.

524. When he examined your gums, did he take you to a dentist?—No, I have not been to a dentist.

525. Have you ever been to a dentist at all?—Not since I was sick. I have been to a dentist at different times.

526. Did Dr. Harris talk to you about your teeth at all?—No.

527. He just examined your gums, and then gave you a certificate. You never went back to Dr. Harris, did you?—Yes, he was prescribing medicine for me for some time.

528. Have you got the prescription in your book?—Yes.

529. Will you let me have a look at that book?—Certainly. I have no objection to your looking through the book.

530. Did you ever suffer from a skin eruption?—A little bit on the arm; I had a few pimples.

531. And he prescribed for that?—Yes.

532. Were there only a few pimples on your arm?—That is all.

533. Did he ever tell you you were at all inclined to be gouty?—No.

534. Did you ever have rheumatism before you went to him?—Well, I thought it was rheumatism I suffered from; it was these cramping pains I had in my legs.

535. For how long before was that?—I have had those for years now; and I have had them across the back.

536. For years?—Yes.

537. Did you ever see a doctor about them?—No.

538. You just took them as being ordinary rheumatism?—Yes.

539. Did you ever apply hot fomentations to any part of your body at all?—No, not before I was sick this time. Hot fomentations are the only things which give me relief now.

540. They were prescribed for you?—Yes.

541. Whereabouts are they applied?—On my knees and all over my legs.

542. Do they prescribe mustard-plasters for you?—No.

543. Have you ever had pains in you ankles?—Yes, right from my toes to my knees.

544. Do you suffer from asthma at all?—No.

545. Any difficulty in breathing?—No.

546. I see from the book that you saw him on the 26th May, and he prescribed for you then, and you saw him on the 30th May and he prescribed for you again. Between the 26th and the 30th May, do you remember whether you were laid up?—I was taking medicine all the time which he had prescribed for me.

547. Were you laid up in bed?—Yes; I was not working then.

548. And you got considerably worse between the 26th and 30th May. Just look at the prescriptions?—This prescription you are looking at is not mine; that is a prescription for my child.

549. I thought all these prescriptions were yours?—No. There may be some there for the wife, too. I think this particular prescription [*pointing to a particular prescription*] is mine. I know that he told me that the main drug in this was to counteract lead.

550. Whose prescription is this of the 18th March?—I think that is from Dr. Harris. I only had Dr. Harris and Dr. Loxton on that book; then I was attending Prince Alfred Hospital as an outdoor patient for three months.

551. When you attended Dr. Harris, did you tell him you had been suffering from rheumatism for some years?—Only just casually I might have had a pain or two, but nothing to lay me up.

552. You told him that?—Yes.

553. Dr. Harris prescribed for you for a while afterwards, but he did not make any further examination of you?—No, I do not think he made any further examinations. Dr. Loxton took a blood test once.

554. But Dr. Harris did not make any further tests?—No. I was only with Dr. Harris a short time when Dr. Loxton took his practice over.

555. Dr. Nash was the next doctor that you saw?—Yes, after I saw Dr. Harris.

556. And Dr. Nash examined you in connection with your claim for compensation?—Yes.

557. And he made a careful examination of you?—Yes, he made a thorough examination of me.

558. Did you put before him the prescriptions Dr. Harris had given you?—I took that book down with me and gave it to Dr. Nash. He said, “I know nothing at all about that; that has nothing to do with me.”

559. You showed him the book?—Yes. But I do not believe he looked at the book, if I remember rightly. He said he had nothing to do with the prescriptions.

560. Did you tell him that you had consulted Dr. Harris before?—Yes.

561. And did you tell him what Dr. Harris had told you?—Yes; I told him that I had come down to be examined for lead-poisoning which I got in the painting trade.

562. Did you tell him about Dr. Harris’s certificate?—I told him that my lodge doctor said that I had lead-poisoning, and I came down to be examined to see if it was correct.

563. Did you tell Dr. Nash that he had given you a certificate to that effect?—No. In fact, I do not think I got any lodge certificate to declare me on to the lodge when I saw Dr. Nash.

564. Then Dr. Nash proceeded to make a complete examination of you?—Yes.

565. And I believe you said he had you under examination for about an hour and a half?—About that.

566. Whereabouts was that?—In his rooms in Macquarie-street.

567. Did he give you any certificate?—Yes.

568. And you do not know where that is?—I know that I gave it to the insurance—the Master Plumbers and Journeymen’s Association.

569. And the next person you saw was Dr. Loxton?—Yes, and he recommended me to go to Prince Alfred Hospital.

570. This certificate by Dr. Loxton is dated 15th August. How long before that did you see him?—Over three months before that.

571. That would be the 15th April?—I could tell you by my lodge book when I got the first prescription.

572. Dr. Loxton took Dr. Harris’s place?—Yes.

573. So he prescribed for you then?—Yes.

574. How many times has he prescribed for you?—I think I took about twenty bottles of medicine off one prescription from him.

575. Can you find that prescription in this book?—It was slightly altered at different times—increased and decreased. [*Indicating a page in lodge book*] I think this is the prescription.

576. That is practically the same as Dr. Harris’s prescription?—Yes.

577. DEPUTY-PRESIDENT: Did the Insurance Company admit your claim?—Yes.

578. Immediately?—Yes.

579. On the certificate of Dr. Nash?—Yes.

580. Are you still receiving compensation?—No. I was on it about three months.

581. When did you commence to receive compensation?—Straight away. I could not tell you the date.

582. It was shortly after Dr. Nash gave you the certificate?—Yes; I took it straight down.

583. And you got compensation for three months?—Yes; right off.

584. At what rate?—£2 a week. That was under half payment. I was receiving over £4 a week at the time.

(Witness retired.)

585. Mr. MANNING: I do not know, Mr. Chairman, whether you want this certificate of Dr. Loxton.

586. DEPUTY-PRESIDENT: I understand that we are to get Dr. Nash’s certificate with regard to Mr. Lowe.

587. Mr. CONNINGTON: That is so.

588. Mr. MANNING: It is rather cumbersome to handle many of these exhibits afterwards, and if possible it is advisable to keep the number of exhibits down as much as possible.

589. DEPUTY-PRESIDENT: Yes. We have it in evidence that on the 15th July, 1919, Dr. Loxton advised Mr. Lowe that he was suffering from lead-poisoning and would have to change his occupation, and he recommended work on the wharves here.

590. Mr. CONNINGTON: It might be advisable to call Dr. Nash at a subsequent stage, and Dr. Nash might perhaps be examined with regard to this list of ours of 120 names. If we had Dr. Nash's record of cases dealt with we might perhaps pick out quite a number of those 120.

591. DEPUTY-PRESIDENT: I have observed that there are not many of the names on the list that are associated with Dr. Nash as doctor, but so far as he can speak with reference to the people on the list, he ought to be asked to do so. What strikes me as a matter of importance is this, that if these employees (because all of the gentlemen whose names appear on the list are employees, I take it) have been certified before respective doctors to have been suffering from lead-poisoning, why did they not pursue their claims for compensation under the Workmen's Compensation Act?—I take it that they have not done so, because Dr. Nash's name is not referred to.

592. Mr. CONNINGTON: The Act is of recent date, is it not?

593. DEPUTY-PRESIDENT: Yes, 1916, I think.

594. Mr. CONNINGTON: The explanation may be that some of these cases may have occurred prior to 1916.

595. DEPUTY-PRESIDENT: Some of them have undoubtedly. The first man on the list says he has been suffering for ten years. But if he has been suffering in the last four years he might have made his claim.

596. Mr. CONNINGTON: Yes. However, that seems to be the only explanation, that it happened prior to four years ago. That is the only explanation that I can make at present on behalf of these people.

597. DEPUTY-PRESIDENT: It is worth looking into, I suggest.

598. Mr. CONNINGTON: Yes, I think so. Of course I am satisfied that there is the feeling that if a man is suffering from plumbism or lead-poisoning there is a certain amount of risk in giving him employment.

599. DEPUTY-PRESIDENT: Undoubtedly.

600. Mr. CONNINGTON: It may be that a lot of men would prefer to remain without Dr. Nash's certificate and rely on their lodge money.

601. DEPUTY-PRESIDENT: If that is one of the reasons why the claim for compensation is not made, then the sooner we get evidence about it the better.

602. Mr. CONNINGTON: I think so. We will investigate it from that point of view.

FRANK FARR, sworn, examined by Mr. CONNINGTON:—

603. What is your address?—359 Bourke-street, Darlinghurst.

604. What are you?—I am a professional painter. I might say that my full name is Farrugia, but I have cut out the "ugia," and I call myself Farr.

605. What is your age?—Between 49 and 50.

606. Did you fill in one of these papers for the union?—I do not think so.

607. How long have you been following the occupation of painter?—From my childhood; from the time I was 10 years of age, and I followed

it until I was 21. I then left it for twenty years, and when I came to Australia in 1914 I went back to it.

608. For the last six years you have been following the occupation of a painter.

609. You were away from it for twenty years?—Yes.

610. And previously to that you had been at it for about ten years?—Yes.

611-12. Have you done painting work outside of Australia?—Yes, in Egypt, but mostly in shipping. I never did any house work in Egypt. It was all shipping work.

613. DEPUTY-PRESIDENT: Outside or inside?—Inside and outside. The rough jobs there were done by the natives.

614. That is, the natives work upon the hull of the ship?—Yes.

615. And the European works upon the cabins and inside?—Yes. Of course, there are not many ships there. It is only in a case of a collision or anything like that. At the Suez Canal Company we have the tugs and the dredges. We also used to do the inside and outside of the boats belonging to the P. and O.

616. Mr. CONNINGTON: In 1914 you started to work in Australia?—Yes.

617. You have suffered from the effects of lead-poisoning, I understand?—Yes.

618. Since when?—The first time was when I was working in Garden Island on H.M.A.S. Melbourne, and I was working in a place where there was no air. That was in the torpedo store; I felt giddy and—

619. How long ago was that?—On the 22nd March last year. I was laid up then from the 22nd March until the 2nd May.

620. You might tell the Board how it came about?—I was working in the torpedo store on H.M.A.S. "Melbourne." I felt sick, and I reported to the charge hand, who told me to go to the hospital to see what was wrong with me. I went to the hospital at Garden Island, but the doctor was not there. The sick bay steward was there, and he attended me; he said, "You are sick," and he put me on the sick list. He said, "You had better see a doctor." I left Garden Island and came to Sydney Hospital, and saw Dr. Ashby (I think that was his name; I have his card at home). He said, "What is wrong with you?" I said, "I am giddy, and I feel weakness all about, and I am shivering." He said, "What trade do you follow?" I said, "Painting." He had six students that afternoon with him. He said, "Let us see your tongue." When I put out my tongue he said, "Let us see your gums." He then said, "You have lead-poisoning." I said, "I never dreamt of it. I never felt queer like this before." He brought all his students to see me. The next day I went to Garden Island and saw the doctor, who said, "What is wrong with you?" I said, "I have been to the Sydney Hospital and the doctor tells me I have lead-poisoning." He saw me and tested me. He said, "Where are you feeling pain?" I said, "In my gums and in my brain, and I have giddiness and a dry retching in the morning." He put me then on the off list. He said, "You continue the medicine that the Sydney Hospital gave you." I continued that until the 22nd May.

621. Were you off work during the time?—I was off work for five weeks. The doctor gave me a note to go and get half pay, and they refused to give it to me because I was not there long. I was only there ten days. I waited from March until November to get paid.

622. Did you go and see Dr. Nash?—Yes; I saw Dr. Nash after I saw the Naval doctor. I went to Dr. Nash to become entitled to the Workmen's Compensation, and Dr. Nash gave me a certificate which I left with our late secretary of the union.

623. Was the certificate in the name of Farr?—Yes. I go by the name of Farr. If I said Ferrugia people would not know how it was spelt.

624. You have a certificate from Dr. Nash, in the name of Frank Farr?—Yes, on the 23rd March, 1920, for plumbism, anaemia, and weakness in the joints.

625. Your illness first commenced in March, 1919?—In March, 1920.

626. Dr. Nash's certificate bore out the statement of the doctor in the Sydney Hospital and your medical officer in Garden Island?—Yes.

627. Since then, have you followed the occupation of a painter?—Yes; I had to.

628. You are still painting for a living?—Yes.

629. When you recovered from that illness of 1920, did you completely recover?—I had not recovered, but I told a lie to the doctor at the Island and said that I was cured. I was not cured. I did not go to Dr. Nash about it. I had to go to work because I had a family to keep, and I said I was all right.

630. All the money you were getting was the money from the Workmen's Compensation Act?—No. The compensation only goes to the State; it does not go to the Federal side at all. I had to wait until November for it to go before a Board in Melbourne. When it came from Melbourne I got the money.

631. Then why did you go to Dr. Nash?—It was all a matter of form, to show that I was leaded.

632. He gave you a certificate?—Yes.

633. And the only money you could draw was from the Garden Island authorities, and they did not pay you for several months?—Yes; I got five week's pay.

634. After five weeks you returned to work?—Yes.

635. And you told someone you were well when you were not well?—Yes, the naval doctor.

636. Family pressure was your reason for doing that?—Yes.

637. Since then, have you worked without losing time?—I have lost time several times. Sometimes I feel sick, and I cannot tie my boots; I feel giddy, and I drop down; I have a dry retching in the morning regularly, and I have to take opening medicine every morning. I take Epsom salts every morning in my tea.

638. Apart from that is there anything else?—Yes, in all my joints.

639. Are you as strong now as you used to be?—No; my finger is going. I do not know whether it is due to the poison or not, but I know it is going.

640. Outside of those Epsom salts which you take every morning do you take any other medicine?—No. I do not believe in medicine.

641. You say you have lost some time?—Yes. Of course, I have no constant time; it is in and out. But when I am working I lose in between times half a day or a day or two or three days. I have to rest at home and have plenty of fresh air. The naval doctor ordered me plenty of fresh air, and so I used to go into the park and sit down in the park, and enjoy myself reading that way.

642. You have a family?—Yes.

643. You have had experience of painting ships in Egypt?—Yes. From my childhood I started with lead. We used to use the lead for putty in the lifeboats. If you use the common putty in the lifeboats, it dries and drops down, but if you use lead there it goes like cement, hard as a rock. When I was a child, I used to put it in with my fingers, and I used to get smothered with it. I never dreamt there was poison in it.

644. Then you were away from the trade for twenty years?—Yes.

645. And you had only been at it again about six years when you contracted lead poisoning here?—Yes. I thought it might be due to working in confined places. I was on the “Brisbane” before she went into commission; we were down below, and used to work ten minutes down and then had ten minutes out in the fresh air. This was in Cockatoo Island. There are no painters and dockers in Egypt. The natives there do that work; they do anything.

646. All the work you did in Egypt was done with white-lead?—Yes.

647. Since you have been here have you worked on house painting?—Very, very little; mostly ship painting.

648. When you say very little, what do you mean?—In six years I worked for about nine months on house work, but still in paint; very little kalsomining.

649. On ship work it is mostly lead paint that is used, is it not?—Yes.

650. Do you use any zinc oxide paint at all?—No. We used to use that in Egypt, but not here.

651. It is mostly lead paint?—All lead paint.

652. DEPUTY-PRESIDENT: What were you doing in the twenty years during which you were away from the painting trade?—I was charge hand, in charge of 3,000 natives bringing coal on board ships for Woods & Co. and the English Coal Company, Limited. I am sorry I have not my references with me.

653. At any rate, you were supervising labour, and that labour was handling coal only?—Yes, bringing the coal on board ships. I had to measure the coal to tons and get the receipt.

Cross-examined by Mr. MANNING:—

654. I take it from what you say that you are not a believer in medicine?—No.

655. I suppose you were not afraid of the effects of painting up till the time you got ill?—No.

656. As a child you used to smear it all over the place with your finger?—Yes.

657. You recollect that, do you not?—Yes, I do.

658. And I suppose when you started painting again you did not care much what you did with it either?—Of course, then I had more sense.

659. Did you adopt any precautions?—Yes; I kept myself clean; but, of course, they do not allow much time.

660. So that really you could not keep yourself properly clean?—When you get home you have plenty of time. When you use a brush with lead, and you have all the spots on you, if you do not wash it well, and you touch your food with it, that all remains in your food, and goes down into your stomach. That is how lead is absorbed.

661. You have some medical knowledge as well as a knowledge of painting?—Well, my brother is a chemist, but I cannot say that I have knowledge of chemicals. I think it is all poison myself.

662. You think medicine is harmful?—I do not believe in medicines. I like herbs, but I do not like medicines.

663. Are you a Christian Scientist?—No.

664. At any rate, you do not believe in medicines. Do you believe in taking precautions?—I have to, otherwise I would be in the bone-yard.

665. When did you begin to think about the bone-yard?—When they said I had lead poisoning. If I want to poison myself I know what to take. I do not want to be poisoned by using lead.

666. What precautions are you going to take to get out of the bone-yard?—Unfortunately I cannot take precautions, because I cannot follow any other trade.

667. I mean to say, you can keep it off your hands?—A certain part of it.

668. Can you use gloves?—No, I cannot.

669. Why not?—Because I cannot afford it.

670. If they were provided for you, you could use them?—You cannot work always with gloves.

671. What is to prevent you?—Sometimes you have to take your glove off to shake hands.

672. But you do not want to shake hands when you are working?—No; but you would not work as easily with gloves as with the bare hands. We used to use them on the “Brisbane” a while.

673. At any rate, it would be better to use them than to go into the bone-yard?—That is right. If they are supplied to me I will use them.

674. That is the only way you think you got lead-poisoning, by having it on your fingers?—Yes.

675. You have been working as a painter from the time you were 6 until 20 years of age?—No. I left home in 1881, when I was 10 years of age; that was before the bombardment of Alexandria.

676. And you started painting then?—I neglected school and used to go with my father, who was a ship-builder.

677. You continued that lead painting until you were 20?—Yes.

678. And then you left painting for twenty years?—Yes.

679. Were you then in Egypt?—Yes.

680. What were you doing during that twenty years?—I was in business, and I was in charge of getting coal on board ships with Woods & Co., Ltd., and the English Coal Company, Ltd.

681. Did you have an accident while you were with Woods?—No.

682. None at all?—No.

683. Did not you have an accident to the head?—No.

684. When you left Woods did you have any illness?—No.

685. None at all?—No.

686. Fever, or anything like that?—No.

687. What country do you belong to?—I belong to Malta.

688. And you have never had any illness of any kind?—No, not to my knowledge.

689. Did you do much painting inside of the ships in Egypt?—Yes, cleaning and painting.

690. You used lead there?—Yes.

691. Did you mix the lead?—No, they used to give it to us mixed. There was a special man to mix it.

692. When you came out here did you start mixing it yourself?—No.

693. You have never mixed it at all?—Never.

694. Have you been rubbing down ships?—Yes.

695. Dry rubbing down?—Dry and wet. We used to coat it with paint and then rub it with wet paint. That is wet paint, not water. The wet paint comes all in your hands.

696. I am speaking now of avoiding the dust from the dry rubbing down. You can adopt a method of avoiding the dust?—Before you put the paint on you have to rub it down.

697. You can rub it down wet, can you not?—How can you rub it down wet? You can rub it down wet with a stone.

698. I am not talking of wet paint. Supposing you have a surface with paint on and you want to get the paint off in order to repaint it; you can rub it down in such a way that the dust does not fly about?—No.

699. You have done it hundreds of times, have you not; rubbed it down with a stone wet?—Yes, with wet paint.

700 No; I mean dry paint?—Yes, dry paint.

701. You can rub that down wet with water?—It depends on the kind of job you are going to do. Some people will put it with water and some people will put it with paint.

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

702. We were talking about this rubbing down when we adjourned, and I was asking you whether or not rubbing down could not take place without having the dry rubbing down. I suggest first of all a rubbing down with water, and that, you say, is a method which is employed in certain cases?—Yes.

703. In proper cases it is quite effective?—Yes.

704. And it is also a method by which the dust, which would otherwise go into your nostrils and mouth is prevented from floating about at all?—Yes.

705. You mentioned also a rubbing down with paint?—Yes.

706. That is, that you put a mixture of oil and white lead on?—Well, we call it a priming, a light coat.

707. Having put that on, you rub that down with pumice?—Yes.

708. Is there any danger attendant on that operation?—Yes, because it is all on your hands and skin.

709. So far as it gets on your hands and your skin it is dangerous?—Yes, it is dangerous, because it goes into the system.

710. But that could easily be avoided by the use of a larger piece of pumice stone, could it not?—No.

711. Why not?—Because a certain part of it always comes back to you.

712. If you got a large piece of pumice, do you say you cannot rub down the face of a door without getting it on to your hands?—After you have finished with the pumice stone you want to get it clean. What is there is lead. You have a bit of rag to use after you have finished, and you have it all on your own body.

713. Do you mean to say that if I asked you to get the paint off this screen—assuming it to be painted—with pumice stone, and I gave you a sufficiently large piece, and also a rag, and asked you to wipe that off with the pumice stone and a rag, that you could not get that off without getting it on your hands?—How could you do it?

714. By getting a large piece of pumice stone and by rubbing it; if you saw the paint getting on the pumice stone, you would knock off and get another piece. When you had finished that, you would use the rag in the manner you suggest, in such a way as not to get it on your hands?—No, you could not.

715. Do you say you could not do that?—I do.

716. Do you say you cannot rub off paint without getting it on to your hands?—A certain part of it is bound to come on to you.

717. Could you not rub it off so that you would not get a spot on your hands?—Impossible.

718. Do you say that seriously?—Yes.

719. Have you ever tried to do that?—Yes, of course I have. I do not want to injure myself. I always like to avoid injuries.

720. Do you seriously say that if you rubbed it off with a large piece of pumice stone?—It is bound to have a bit of lead on it, and a quantity of lead would get on to you.

721. That is your view, that you could not possibly rub it off without getting some of it on your hands?—Yes, that is so.

722. Having got it on your hands do you say then that it is injurious—the fact of it being on your fingers?—Yes.

723. That fact alone, without getting it into your month?—That is another injury. It is injurious in all ways; you inhale it, and you have it on your own skin.

724. Cannot you wash it off?—Yes; but if I touch this piece of blotting-paper and I wash myself it comes back to writing again.

725. But you do not put your fingers into your mouth when you are painting do you?—No, but you have to wait until you have time to wash.

726. When you have finished your painting is there anything to prevent you washing?—There are four hours of work first.

727. Mr. CONNINGTON: Have you time to wash?—Very little.

728. Mr. MANNING: Supposing you have time to wash?—But that is after four hours.

729. Supposing that instead of four hours you only worked three and three-quarter hours, that would give you a quarter of an hour to wash your hands, do you mean to say that you could not then get every vestige off your hands?—No, it is impossible. A certain amount is bound to remain in the system of the person. A certain quantity is in the system.

730. Mr. CONNINGTON: It would relieve things a lot if you had a quarter of an hour?—You will take off as much as you can. For instance, if you have a drop of methylated spirits on your hands, it dries off; you can wash it, but it has gone into the pores of the skin.

731. Mr. MANNING: You say it dries off into the pores of the skin, but otherwise you could get it off?—But they do not give you time.

732. If you had time you could get it off so that you could not get it into your system through the mouth?—That will not prevent it, because you cannot wash what you are inhaling.

733. If you wash your hands properly after having gone through the day's work, could you wash your hands in such a way that none of this stuff could get into your mouth?—Of course not.

734. How will it get into your mouth?—While you are working.

735. Just listen; you have finished your work and you have plenty of time to wash your hands. Supposing you have finished your work and you have thoroughly washed your hands as well as you possibly can, tell the Board now how the white lead will get into your system then?—It has got into it by inhaling it. That is one part. Then there is the other part. One part is inhaling.

736-7. So the inhaling is done when you are actually putting the paint on?—After it has been mixed—yes.

738. You inhale the white lead fumes then, do you?—Yes, a certain part of it. I do not mean you inhale all they give you.

739. Do you distinguish between inhaling the fumes of white lead and turpentine?—No.

740. You think they are both the same?—I cannot judge it; I cannot say whether it is the one or the other.

741. Mr. WILLINGTON: Is there any odour from white lead alone?—How do you mean?

742. If you have a tin of white lead not mixed, is there any odour from that?—Of course. As soon as you open that tin you inhale it. It will not come to me, but it goes to the man who is mixing it.

743. Does he feel it?—He feels it, but I do not. I feel it when I am laying it.

744. You do not know that it is there at all, except by supposing?—Yes.

745. I do not suppose you have thought it worth your while to take any precautions against getting the white lead into your system?—I did.

746. What precautions did you take?—I went away to the country.

747. But you cannot go away to the country in the middle of your painting?—Well, you have a bit of fresh air.

748. That is the only precaution you have ever taken?—I think so.

Re-examined by Mr. CONNINGTON:—

749. While you have been actually painting have you done anything in the way of actual precautions?—I only take the salts in the morning.

750. And you go away into the country for a change?—Yes.

751. Mr. MANNING: Whereabouts would you rather work, in Egypt or in Australia, as regards climate?—I think they are both equal in one way.

752. What is that way?—Because it is dry, and the humidity is about the same as in Egypt. I feel it just about the same.

753. So you would just as soon be in Egypt working?—I would be either here or there as regards the climate.

754. Do you get any paint on your clothes while you are working?—Yes.

755. Do you wear overalls?—Yes.

756. Do you always wear them?—Yes.

757. Do you see that they are washed afterwards?—Every week.

758. I think I asked you about a doctor?—Yes; there was Dr. Ritchie, the naval doctor, and Dr. Nash.

759. This is your card?—Yes, and this [*handing a document to Mr. Manning*] is where I have been for twenty years while I was out of the trade. Dr. Ritchie tested me with six students on that date.

760. Dr. Ritchie attended you?—Yes.

761. What is the date on that card?—23rd March, 1920.

762. You went and saw Dr. Ritchie in March, 1920, at the Sydney Hospital?—Yes.

763. Did you see him afterwards again?—Every fortnight.

764. And he prescribed for you?—Yes.

765. Have you been seeing him every fortnight since?—No. I left him on the 22nd May, 1920.

766. Was he the doctor who had the students with him?—Yes, that is the date he had the students with him; he had six students. I can say that one was a Japanese or a Chinese.

767. He examined your mouth?—Yes.

768. Did you go to a dentist afterwards?—No.

769. Did he recommend a dentist?—I do not believe in dentists. I want my own teeth.

770. You have never been to a dentist in your life?—No.

771. Would you mind a dentist examining you teeth?—No, I would not mind.

772. DEPUTY-PRESIDENT: Mr. Connington, you do not suggest that these documents should be accepted as documents in the case, do you?

773. Mr. CONNINGTON: The witness is very anxious that the Board should have this information.

774. DEPUTY-PRESIDENT: So far as that is concerned, one of the documents certifies to Angelo Farrugia's good character, and a certificate is given by the chief engineer of the s.s. "Hetricka"; the other is to the same effect, and is given by Mr. Reishman, Port Said; the third is the card which was issued to him as an out-patient of the Sydney Hospital.

775. WITNESS: That is giving you the history for twenty years.

776. DEPUTY-PRESIDENT: There is no question that he is not a perfectly dependable and honest man. That, of course, is evidence in support of his contention that he should be so regarded.

777. Mr. CONNINGTON: Are you prepared to submit yourself to any examination?—Yes, at any time.

778. You mentioned that you take trips to the country?—Yes.

779. Are they holiday trips, or do you go away to work in the country?—I go away to work. The naval doctor ordered me to take as much fresh air as I could.

780. And you think that it is good for you?—Yes, and I feel better for it.

781. What work do you do in the country?—Painting. The last I was at was at Lithgow with Mr. Hanley.

782. Have you used any non-poisonous paint?—No, all lead.

(Witness retired.)

JOSEPH HOLBORN WARDEN, sworn, examined by Mr. CONNINGTON:—

783. What is your address?—67 Hutchinson-street, St. Peters.

784. And your age?—I am turned 60; I am between 60 and 61.

785. According to this return you have had thirty-seven years' experience as a painter?—Yes.

786. You suffer from the effects of lead-poisoning?—Yes.

787. Has a doctor certified to that extent?—Yes. Dr. Bruce certified in the first instance, and Dr. Nash and Dr. O'Neill; three doctors.

788. When did you first see a doctor?—Last October.

789. Was that the first occasion?—Well, about thirteen years ago I first saw a doctor, Dr. Trindall, who told me I had symptoms of lead-poisoning. I lost no time at my trade during that time.

790. And he examined your gums?—Yes. I had a very bad lacerated throat through that. I still continued at my work, and was cured in about three months' time.

791. Where were you then?—I was working in Sydney at the time.

792. DEPUTY-PRESIDENT: Is Dr. Trindall a Newtown doctor?—Yes.

793. Mr. CONNINGTON: You were under his treatment for three months?—Yes.

794. And you continued in work at the time?—Yes, I continued at work until I was cured again.

795. From then until last October?—I felt no effects from it until then. I will say this, that last winter I had pains in my feet as if some one had struck me on my feet. After I had been at work about two days, it would generally come on, about Tuesday night—and I would lose a day or two, and then I would go to work again. That was the start of it.

796. That was last winter?—Yes.

797. From the time Dr. Trindall attended you up till last winter, you got along very well?—Yes, I felt no effects at all.

798. Last winter pains in your feet commenced?—Yes.

799. And anywhere else?—In the ankles and feet.

800. Was the pain confined to the ankles and feet?—Yes.

801. And you saw a doctor then, did you?—No, I did not see a doctor at that time, because I really thought it was perhaps rheumatism. I took really no notice of it, because it went in a day or two, and I went on working.

802. How long did you continue working?—I was continually working then up till the time I felt sick.

803. From the middle of winter until October you worked right through?—Yes, I worked right through the winter until then. On the 2nd October I went and saw my doctor. I was sick for about a week before that.

804. Which doctor was that?—Dr. Bruce. He is my own doctor.

805. Is he a lodge doctor?—No, he is my own doctor.

806. You saw Dr. Bruce in October last?—Yes.

807. What caused you to see him?—I was so ill that I had to go to see him. I thought I had gastritis at first.

808. Were you ill for long before you saw him?—For about a week I was away from work, and I had colic pains in the stomach, and pains down the

legs and knees and down to the feet again. I had pains in the head and I started to vomit, and I went off my food.

809. You suffered from that for about a week?—Yes.

810. And then you saw Dr. Bruce?—Yes, and directly he saw me he told me to leave the trade right away, as I had lead-poisoning.

811. What happened after he gave you that advice?—I laid up.

812. For how long?—I was able to get about a bit, you know.

813. Were you able to work?—No. I could do nothing until the end of the year.

814. You were not bedridden; you could move about?—Yes.

815. But you were off work?—Yes.

816. For how long?—I was off work until the end of December.

817. From October until the end of December?—Yes.

818. Do you know whether it was early or late in October when you saw Dr. Bruce?—It was the 2nd October when I went and saw him.

819. From the 2nd October until the end of the year you were off work?—Yes, I was off work altogether.

820. Were you under his treatment during that time?—Yes, all that time.

821. Did you apply to Dr. Nash for a certificate?—Yes, I went to him on account of the conversation.

822. When did you see Dr. Nash?—That would be a week or two after.

823. Sometime about a fortnight after the 2nd October?—Yes, about a week or two after I saw my own doctor, and I got a certificate from him. Those certificates all went in to the insurance people.

824. And they paid you on the certificates?—Yes.

825. DEPUTY-PRESIDENT: Did they pay you at once?—No, I had to wait fully a month till I got anything, and then I got my full month's pay straight away; then they paid me weekly after, until I got the certificate to say I was all right.

826. Mr. CONNINGTON: You took the certificate to the insurance company?—Yes.

827. I suppose they could not question his certificate——

828. DEPUTY-PRESIDENT: Why could not they litigate the matter, Mr. Connington? I suppose they could litigate the matter if they thought fit.

829. WITNESS: They said I should very likely have to go under a third doctor after Dr. Nash. In a week or two's time I got a notice from the insurance people to say that they preferred me to see Dr. O'Neill, who was their doctor. He was in College-street. I went and saw him and he put me under a very strict examination for about four hours—two hours in the morning and two in the afternoon. I do not know what he said about it, but they said they would give me the benefit of the doubt and said I was leaded, and they paid me.

830. Did Dr. O'Neill express any doubts?—No.

831. Why do you say they gave you the benefit of the doubt?—That is what the manager said.

832. Anyhow, the point is that the insurance company paid you?—I am only telling you what was told to me. I got my money for fifteen weeks. I was not properly fit to work until the middle of January.

833. Did you receive payment up to the middle of January?—I received fifteen weeks' payments and then they knocked me off.

834. Were you paid up to the middle of January?—Yes, about the middle of January.

835. What do you mean by "they knocked you off"?—They stopped the pay. They sent me back to my own doctor to get a fresh certificate. Every now and then they kept sending me back to get a fresh certificate from my own doctor.

836. Did you have to pay your doctor?—Yes, every time.

837. Did they allow you anything for that?—No, they allowed me nothing for that. A second time I had to go to Dr. O'Neill. They wished him to examine me again.

838. This was sometime in January, was it?—Yes. That second time he had a consultation with my doctor. They had a consultation together, and after that my insurance was stopped.

839. Why did you not go back to Dr. Nash?—I never went back to Dr. Nash. Of course, my own doctor told me he thought it was out of my system, so there was no use in my going back to Dr. Nash. Of course, I was all the while asking him how he thought I was.

840. That was about the 14th January of this year that they paid you off?—Yes.

841. How long afterwards was it before you looked for work?—I could not say exactly.

842. Did you feel fit to work on the 14th January?—I used to feel right some weeks, but other weeks I would feel queer. I got a job as soon as I possibly could.

843. When was that?—I think that it was during January that I got a job.

844. After getting your new job at the end of January, or after the 14th January, did you feel quite well whilst at work?—Well, I did not feel bad or I would not have started. Of course, if you do not feel well there is no use in your going to work.

845. You felt well enough to start?—Yes.

846. From then until now you have been working?—On and off.

847. Have you been off through slackness of trade?—Yes, there has been seven clear weeks of spell I have had of late.

848. No work?—Through slackness of work.

849. Have you lost any time since then through illness?—No, but still I feel pains in my feet again occasionally. Two or three days ago these pains seemed to be coming back.

850. DEPUTY-PRESIDENT: Mr. CONNINGTON, is it possible for you to call evidence showing what time is lost in the painting trade by the employees in the trade?

851. MR. CONNINGTON: That evidence can only be given roughly by the officials of the union. No figures have been kept.

852. MR. MAXING: Apparently Mr. Connington cannot even give you the number of employees engaged in the industry.

853. DEPUTY-PRESIDENT: Is there any friendly society work in connection with this union?

854. MR. CONNINGTON: No, this is purely an industrial union.

855. However, you feel pain occasionally now?—Yes, and the next moment feel a bit stiff.

856. You are working now?—Yes.

857. Have you done any painting in other countries?—Yes. I was born in England, and I served my apprenticeship in England. In 1883 I came out here, and I was 23 years of age when I arrived here; I have been in this country ever since.

858. DEPUTY-PRESIDENT: How many years did you serve as an apprentice?—I think it was four years' apprenticeship where I was. I went to it rather late. I should have gone on when I was 14, but I went to it when I was 17.

859. There are twenty-four years of your life that are not accounted for, when we take your assurance that you have been at the trade for thirty-seven years? When did you begin the apprenticeship?—At 17 years of age, and I have been at my trade ever since.

860. MR. CONNINGTON: Are you 60 years of age?—Yes, I have turned 60.

861. Then you have worked forty-three years?—Yes. I have been in this country since 1883. I arrived here in 1883.

862. You went to your trade at 17 years of age?—Yes.

863. How many years of apprenticeship did you serve?—Four.

864. Did you intend to include in those thirty-seven years your apprenticeship term?—I cannot answer that. I might have made a mistake in some way.

865. Never mind. You are 60 years of age now?—I will be 61 on the 2nd of this next month.

866. You started your apprenticeship about 17 years of age and you have never stopped working at the trade since?—That is right.

867. DEPUTY-PRESIDENT: Are there many trades at which a man can last for forty-three years?

868. MR. CONNINGTON: I think so.

869. DEPUTY-PRESIDENT: This man may be particularly fitted to last; it may be a case of the survival of the fittest.

870. MR. CONNINGTON: This man has gone a long time without being affected. The books tell us of cases such as this—men who go a very long time and miss the disease altogether.

871. WITNESS: I have had many long spells, being out of work, and so on, through the trade not being too good.

872. DEPUTY-PRESIDENT: At what occupation did you work when you were on those spells?—I was out of work altogether when I could not get the work to do.

873. You did not follow any other occupation?—No.

874. You have never worked as a labourer?—No.

875. MR. CONNINGTON: Is there much time lost in the painting trade?—A great deal of it has been lost time. It is better since the war than it has ever been.

876. That is because the transports brought you a lot of work?—Yes.

877. In normal times is there much loss of employment?—Yes, there is a good deal of unemployment. There is a good deal of broken time.

878. MR. CONNINGTON: Speaking on that remark of yours, Mr. President, it seems to me that out of this 120 there are a few elderly men, but they are well under the fifties, I think.

879. DEPUTY-PRESIDENT: The average length of service in the trade is considerable amongst those 120.

880. MR. CONNINGTON: Yes. I know it looks a lot. But if you take an average man of 45 who has been following the same occupation all his life, you may find that he started at 15 years of age, and that would be thirty years.

881. DEPUTY-PRESIDENT: It is rather extraordinary, because of the assurance we get from industrial statistics that men who work on ladders work in jeopardy. These men really live on ladders, do they not?

882. MR. CONNINGTON: Most of the time is spent on ladders, is it not?—Yes.

883. DEPUTY-PRESIDENT: So that the man who survives 43 years must be a particularly fortunate man from that point of view.

884. MR. CONNINGTON: Yes.

885. WITNESS: I have done a terrible lot of ladder work in my time.

886. MR. CONNINGTON: Even in mining work and other work like that you will find men of 60 who have been at the work all their lives. Of course hundreds come in and go out, whom we never hear about. We only know of the men who stop in.

887. Mr. WILLINGTON: Would those be all the accidents, the men who come in and go out?

888. Mr. CONNINGTON: No. We know that in every business hundreds of men come into the trade at the beginning of the year, and get tired of it and leave.

889. Mr. WILLINGTON: So that it does not throw the onus of accidents on to those who work regularly?

890. Mr. CONNINGTON: No. I do not think you can infer too much from that fact, because there are men who follow the most dangerous of occupations and continue to follow them, whereas our common knowledge tells us that other people have only been a year or two in the same business and have cleared out for reasons which are quite understandable.

891. Mr. WILLINGTON: I take it from your statements that those people who came in for a short period were not the people who had the accidents?

892. Mr. CONNINGTON: I do not know. They may or may not have had accidents. They do not like the business, and they clear from it as soon as they see an opportunity of getting something else.

893. Mr. WILLINGTON: It is only on the question that if the trade itself is dangerous, because of its liability to accidents, and it is limited to those who come in and go out, those who remain must be practically free from the risk of accident.

894. Mr. CONNINGTON: We know that men who are standing on a ladder all day get used to it, and it is not hard on them, although it may appear to be to the average man.

895. DEPUTY-PRESIDENT: We have perhaps taken you somewhat off your line of questions, Mr. Connington. As we go along we may help one another by suggesting lines of examination which are likely to be most profitable. For instance, the thought emerges in my mind that evidence with regard to absenteeism in the industry is likely to be much more valuable than any other kind of evidence—

896. Mr. CONNINGTON: If we can get it for you we shall do so.

897. DEPUTY-PRESIDENT: I do not suggest that you should get it, because I do not know whether it is possible to get it. The fact that men remain in the industry for a number of years does not mean that they are well all the while that they are in the industry. If we could learn from this gentleman how many times he has been laid up during the course of his forty-three years' experience of the trade, we shall learn a good deal more about his health than we will by finding that in his 61st year he has been attacked acutely by Plumbism and has been out of work for many months.

898. Mr. CONNINGTON: Yes. His evidence goes to show that up to last year he was all right. Thirteen years ago he had some symptoms, and after being under a doctor for three months he completely recovered, and was all right until October of last year, when he felt the symptoms coming on again, and he got so bad that he had to knock off. He saw his doctor, had a spell for about three months or a little longer, returned to work, and is working now.

899. Am I quite right in putting to the President that up to thirteen years ago you had good health all the time that you were working at the trade?—Yes. I cannot complain. I have had first-class health.

900. You were not off for sicknesses which could be attributable to your work?—No. With the exception of a cold. Of course, anyone is liable to a cold. I have always been subject to colds.

901. From the period running up to October last, except for that week when you saw Dr. Bruce, what was your condition of health?—Always first-class health.

902. Then the week in October laid you up?—Yes.

903. And you had a bad time until the middle of January?—Yes.

904. And now you feel the effects of it occasionally?—Yes.

905. Generally speaking, what is the painter's view of the white lead question;—are they favourable to its continuance?—According to what I can see of them, they seem to be against the use of the lead altogether.

906. Do you ever hear the men conversing with regard to the use of lead in paint?—As a rule they do not talk much about such things on a job. I never see them talking much about their trade.

907. Do the painters generally regard their trade as a healthy trade?—No; very unhealthy, I should say.

908. During the course of your lifetime in the industry, have you noticed the majority of men in good health, or have you noticed anything unusual in the way of sickness?—Yes, there seems to be a good many of them go off work. Some of them have vomiting attacks. I know one man particularly who, if ever he uses green paint, is always sick. I myself can use any paint, and will never be sick.

909. Take the trade generally, is it a usual thing to hear men complaining, or to see them going off work?—Yes. The men are always complaining that they are feeling a “bit off,” or that they do not feel right—headaches and that sort of thing.

910. Is that a general custom in the trade?—Yes. Of course I have had headaches many a time, but I take no notice of headaches.

911. You keep up?—I keep up until I go down to it. I have always been the same.

912. Would you say that you have been more healthy than the average painter?—I think I have. I went under Dr. O'Neill, the insurance doctor, and he told me then that I was a wonderful man for my age.

913. You have had a pretty fair run, have you not?—Yes.

914. You have done house painting?—Yes, principally house painting. I have done ship painting, too.

915. Inside and out?—Yes, inside and out.

916. Have you worked with non-poisonous paints?—Yes, I have used Keystona.

917. Anything else?—I do not know that I have used any other non-poisonous paint.

918. Is Keystona the popular indoor paint?—Yes.

919. For the purposes for which paint is used, is it as efficient as painting with lead?—Yes, I think it is just as good as lead, if not better.

920. From your point of view, is it less harmful?—Far less harmful.

921. You rub it on in the same way as the other paint?—Yes, and we can use it much thinner, and it spreads better.

922. From your point of view is the smell any different?—No, it does not smell any different.

923. It is the feeling you have that it is non-poisonous?—Yes. If it is used with turps, it smells a bit turpsy.

924. Mr. WILLINGTON: Can you tell us what the composition of that Keystona is?

925. Mr. CONNINGTON: No.

926. WITNESS: It is an American patent, but I could not tell you what the ingredients are.

927. Mr. CONNINGTON: Can you tell us what you think are the ingredients?—I could not say; I have never analysed it.

928. What do you think it is?—That is a very difficult thing for me to tell you.

929. However, you feel safer when you are working with it?—Yes.

930. Is it extensively used in inside work?—Yes, it is used a good deal in Sydney.

931. What about the finish?—It makes a splendid finish.

932. Equal to the lead?—Yes, far superior to the lead. It makes a beautiful flat finish, or you can make it into an oil if you wish, by adding oil to it.

933. Have you ever used any other non-poisonous paint besides that, or paints that are called non-poisonous?—No, I do not think so.

934. You think it has all been Keystona?—Yes.

935. How many years have you been using the Keystona?—It must be over ten years since I first saw it. I used it at Tyler's when they did up their rooms the first time they were done. Tyler's are the agents for it, in Bridge-street. I did up their sample-rooms at the time.

936. Has the bulk of your work been done inside or outside?—Both inside and outside.

937. You could not say at which the majority of your time has been spent?—No. I have done a terrible lot of housework outside, and I have done a terrible lot of climbing on ladders in my time.

938. With regard to outside work, would Keystona be a satisfactory paint to apply?—Not for outside work I should say.

939. Do you know any non-poisonous paint which would be suitable for outdoor work?—No.

940. Have you ever used anything but lead paint on outside work?—No, it has all been lead paint that I have used for outside work.

941. What is the practice with regard to inside work? Is it the practice to rub down before you apply the paint?—Yes; it would be no good without it was thoroughly rubbed down.

942. When on old painting you prepare the surface and then apply the paint?—Yes.

943. What is the procedure on new work?—You apply a coat of priming first; then you go over it again with your glass paper and give it a good cleaning down, and then you put on another coat. The whole work has to be rubbed down and pumice-stoned first or glass-papered.

944. Mr. MANNING: And watered?—You can do it with water if you wish; you can clean down with water. In England we generally do it with water. But then it has to be dusted off after, and you inhale the dust from it just the same.

945. Mr. CONNINGTON: With regard to outside paint, the rubbing down process is done there also?—Yes, but principally it is done in water more in England than here. They generally give it a rough rub over with glass-paper here.

946. Is it possible to carry out painting without the rubbing down process?—No, it would not make a satisfactory job; you would have the work all lumps and gritty. You must have a smooth surface to work on to make a satisfactory job.

947. You are not in a position to say whether the effects of your disease are still in your constitution?—I could not say that for certain.

948. But you feel recurring pains somewhat like the October indications?—Yes, now and again.

949. And of the Board desires it would you be prepared to submit to an examination by anyone who may be appointed?—Yes, any time you wish.

950. Mr. CONNINGTON: This might be an interesting case, Mr. President, in this regard: the witness's first symptoms were thirteen years ago. After three months' treatment he recovered. The illness was not sufficiently severe to cause him to remain off work. He ran on then for a period of thirteen years up to the week before October last. Then the feeling became so bad that he had to knock off work. He saw a doctor, who at once told

him it was lead-poisoning. The fact that it was lead-poisoning was verified later by other authorities. He ran on for nearly three months, suffering so severely that the insurance company felt their liability to him should be respected. About the middle of January he recovered, and since, excepting those few pains that he complains of, he has suffered nothing. So far as he knows he believes his system is entirely free from the disease. It would be interesting if a proper certificate could be got as to his present state of health, and as to whether any of the disease is at present in his constitution. The witness is prepared to submit to any examination.

951. DEPUTY-PRESIDENT: What experience have you had with proprietary paints on a lead basis or any other basis? You see, painters may use paints that are produced by a factory, or they may use paints that are mixed by their employers' paint shop. The paints that are produced ready for use by a factory I refer to as proprietary paints?—I have not used much of those.

952. The paint you have been working with has invariably been a home-mixed paint?—Yes, that is what I generally work with. It is very seldom I use the paint in tins.

953. Are you ever entrusted with the work of mixing your own paints?—Yes, I often get that job.

Cross-examined by Mr. MANNING:—

954. So that from 1878 to 1906 you were working consistently and regularly as a painter?—Yes.

955. And you were mixing your own paints all that time?—Yes, on and off; not all the while mixing them. Sometimes I might go on a job where there might be a foreman on the job who would mix them.

956. I suppose you have done a good deal of mixing?—Yes, I have.

957. And everything went well from 1878 to 1906. In 1906 you saw Dr. Trindall?—Yes.

958. Had you ever had any illnesses before 1906?—No.

959. None of any kind?—No.

960. How often did you see Dr. Trindall?—I saw him about once every week.

961. For how long?—For about three months.

962. What were your symptoms?—It was all in the mouth and the gums and the throat.

963. Did you have your teeth examined then?—Yes, he looked at them and said the teeth were in a bad state.

964. Did he say they were septic?—No. He said they were in a bad state, and I would have to always keep them thoroughly cleaned.

965. Did you have them examined by a dentist then?—No.

966. Have you been to a dentist since?—Yes, I went to a dentist this last time.

967. Did you have them out?—Yes, I had them all out from the top, and I had the bottom ones scraped and thoroughly scaled.

968. Before the doctor saw you and told you about them?—I only had two left; there were only two to come out. The others had fallen out.

969. Did he ask you whether you would care to have the other two out?—My own doctor told me some time before, when I had been to him before, that I ought to have my teeth seen to, so I took his advice at the finish.

970. That was after you had seen Dr. Trindall?—Yes.

971. Some considerable time after?—Yes.

972. About how long after you had seen Dr. Trindall was that?—A number of years after. I shifted from one doctor to another, because I was in a lodge at that time.

973. You did that about ten years after you saw Dr. Trindall?—Yes.

974. He told you then that you would have to have your teeth seen to?—Yes.

975. Did he say anything about lead-poisoning to you?—Yes, he gave me a certificate.

976. Did Dr. Trindall say anything about lead-poisoning?—Yes.

977. Did he say whether lead-poisoning affected your teeth at all?—Directly he saw me he said I was leaded; he said he could see it in the gums. That was directly he knew I was a painter.

978. But that if you went to a dentist and had them seen to it might be all right?—No, he did not say anything about that. He only told me to keep them clean and see the teeth were well looked after. Since then my teeth have got very bad and I have had to have them taken out one by one.

979. Have you suffered very much from toothache?—Not much in this country.

980. But you did in the old country?—I did when I was young.

981. When did you see the next doctor after Dr. Trindall?—Dr. Bruce.

982. That was in October last year?—Yes. In the meantime I saw Dr. Trindall on other things, such as a cold and so on. I have had colds on me for three months, and I have been to the doctor then.

983. Did you tell Dr. Bruce in October, 1920, that you had trouble with your teeth?—Well, he looked at my mouth. That was the first thing he looked at.

984. Did he examine your teeth?—Yes, he examined them, and said, "You ought to go and see the dentist."

985. That was after you had had the top teeth taken out?—Yes.

986. Did you go to see the dentist?—I went and saw him on my own.

987. What did the dentist do?—He took the two out.

988. Those were the top two?—Yes.

989. And he scraped the others?—Yes, scraped and cleaned the others. In the meantime I had to have another big double one out on the bottom, which had got loose.

990. Are you undergoing treatment now for your teeth at all?—No. I have my teeth, but I very seldom use them.

991. When you first went to see Dr. Bruce did you tell him you had seen Dr. Trindall?—No.

992. I suppose you told him what your occupation was?—Yes; he knew I was a painter, because he was my family doctor. He has known me for a number of years.

993. I suppose he diagnosed your case straight away?—Yes. He told me at once I was leaded, and that I had better leave the trade at once.

994. After that you saw Dr. Nash?—Yes.

995. Did you tell him what Dr. Bruce had said to you?—No, I did not say a word.

996. He knew what he was to examine you for?—Yes.

997. He knew the question was whether you had lead-poisoning?—Yes.

998. Since you saw Dr. Nash you have had no trouble at all other than that you have spoken of, *i.e.*, recurring pains occasionally?—Occasionally I get them across the feet. A day or two ago I got those pains again.

999. What kind of ladders used you to work on—the ordinary painter's ladders, with round rungs?—Yes.

1000. And you would be standing on those pretty well the whole of the day?—Yes.

1001. And after your day's work, I suppose you would feel a good deal of fatigue in the joints?—Yes.

1002. And sometimes you would have to get your legs rubbed?—No, I have never had my legs rubbed.

1003. But you would feel considerable pain after a day's work?—Yes. I used to feel a bit tired. When I got home and sat down and had my tea, I would go to get up and I could hardly put my feet to the ground. That was through the sitting down after working all day.

1004. You would attribute that to the continuous work on the ladder?—Yes.

1005. I suppose when you were up on the ladder you would be reaching out for the paint brush and holding on by the other hand?—Yes.

1006. And I suppose that would affect the joints of the arm in the same way, and give you pains in the joints of the arm?—I do not think that that would affect you.

1007. Mr. MANNING: Hanging on to a ladder, you would be in one position for a considerable time?—But that would not affect you, I think—it would not affect a man in sound health.

1008. But some men may be stronger than others. Is it not a pretty considerable strain working with a brush—a strain on your wrist?—Yes, but you get used to that so that you do not feel it.

1009. But after you have done a bit of it you feel a stiffness in your joints from constantly using the brush?—When you have been away from it for a time and then come back, if you have a heavy spell, say doing a big wall, you might. Perhaps after the first day you would feel better, but you might be a bit stiff the first night, in the wrists.

1010. As a rule after a day's painting you feel, at any rate, tired in the joints at night time?—Yes, you often feel tired in the joints.

1011. I think I asked you about mixing the paints. You have frequently mixed them yourself?—Yes.

1012. I want to come now to the question of rubbing down. I think you have already said the old dry paint could be rubbed off wet, with water?—Yes.

1013. I suppose there is no danger of any dust?—Yes, if you keep on rubbing down with water, when it gets dry you have the dust afterwards, before you can put your paint on.

1014. I do not quite agree with you there. Do you not often use a wet sponge, to sponge it off?—Well, you could, but I have not heard of it being done.

1015. It is a simple way to avoid dust in your nose and mouth, is it not?—They will not provide sponges for you to wash-off with.

1016. Suppose you struck one of these generous-hearted employers we hear about sometimes and he gave you a big sponge, would it not be alright?—It would not be too bad then.

1017. That would get over the difficulty, would it not?—Yes.

1018. Now I come to the next method of rubbing down. You put a thin coat of paint on?—Yes.

1019. And the next operation is rubbing it off with a brush?—But a good man will not have it done that way.

1020. Suppose they allow it to be done in that way, is there any risk attendant on the use of white-lead in that operation?—No, I do not see that there is, unless the pumice stone is a bit short and you get your hand amongst the paint.

1021. Suppose you have a fair lump of stone, it is all right then;—you are not one of those people who suggest you cannot rub the paint off a door?—If it could be done without getting any of it on your fingers, I think it would be all right.

1022. I suppose it depends largely on the man who operates it; but there is no trouble about wiping it off afterwards, with a cloth, is there?—No, there is no trouble that I know of.

1023. Then there are some occasions when you have to burn off old paint that has thickened or blistered; you have to burn that off to get the surface smooth. Is there any danger in burning off?—You inhale a certain amount of fumes, which I do not like myself. I have had fully a week of it on the job I am working at now.

1024. Do you suggest that in burning off you get any white lead, or is it just the burnt oil?—I think it is more the smell. Of course, the age has told on the paint, and no doubt it has quite a good deal of lead in it.

1025. That is the trouble, is it not;—does not the lead perish, and it is dead and gone with the old paint?—Yes.

1026. So much for that. You do not recognise any danger, do you, about burning off?—Yes, I say the fumes——

1027. But apart from the fumes, there is nothing?—I could not say for certain. There is a certain amount of lead in it then. There is lead even on the door after we have done with that. It has to be cleaned off afterwards.

1028. But as far as you are able to tell from your experience, the main objection is to the fumes, whatever they may contain?—Yes.

1029. You were asked by Mr. Connington some questions about what other painters thought of the use of lead in paint. I do not suppose you bother yourself much about what other men think, do you;—you do not go about finding out what men think of the use of lead in paint—you go and do your work, and have done with it?—That is it.

1030. You were asked these questions, and I understood you to say (I do not know whether you intended or not to convey that meaning) you found the rest of the painters were against the use of white lead. Is that correct?—Yes.

1031. How did they give expression to their opinion?—They reckon it is no good for their health.

1032. Who said that?—I have heard many a painter say the same thing.

1033. Did he say it of paint, or of white lead?—White lead, certainly.

1034. You said one man always used to go away sick after using green paint?—That is correct.

1035. There is no white lead in green paint at all, is there?—No, I do not think there is. Of course, it is according to what green paint you use. We have to put a certain amount of white lead to make certain kinds of green paint.

1036. But in some kinds of green paint there is no white lead used?—Not in enamel green.

1037. Those men who get sick after using green paint must have a dislike for the colour, green?—

1038. MR. CONNINGTON: There are half a dozen greens.

1039. MR. MANNING: You were further asked about the Keystona paint and you referred to the finish of that paint. I take it you mean that the finish there is at any rate the equal of the white lead?—Yes.

1040. And as regards durability, have you ever made any test of the Keystona paint?—I have seen it used afterwards, and it stood the test well—just as well as white lead.

1041. How long afterwards was that?—Two or three years.

1042. Are you prepared to swear there had not been another coat of paint from the time you saw it until two or three years afterwards, when you saw it again?—I cannot swear that.

1043. So that you really cannot say anything about it, one way or the other;—is not that he position?—Yes, that is it.

1044. Talking about this emerald green, that was the green after using which this man got sick?—I do not say particularly emerald green.

1045. There is arsenic in that green, is there not?—Yes, there is.

1046. That might have affected him—the fumes of that green?—Yes, it might be so.

1047. Mr. CONNINGTON: I would like to call your attention to this, Mr. Deputy-President, that although the witness saw three doctors, he only gives the name of one, Dr. Nash. From that, I take it Dr. Nash may have been most useful to him.

1048. DEPUTY-PRESIDENT: We do not rely upon the statement you have given to us, but from the evidence from the witness. I am only suggesting that matter seemed to be implied by your statement, when I said that there were many doctors referred to in it other than Dr. Nash, the doctor to whom the patient had to go in order to derive the benefits to which he was entitled by law as the result of sickness, or sickness which was the result of lead-poisoning.

1049. Mr. CONNINGTON: Mr. Pickering was treated by Dr. Nash, also this witness, and it may be——

1050. DEPUTY-PRESIDENT: It may be economical for us to rely in the first instance on Dr. Nash.

1051. Mr. CONNINGTON: If we see Dr. Nash's returns we may be able to learn a good deal.

1052. DEPUTY-PRESIDENT: I certainly think Dr. Nash ought to be called.

1053. Mr. CONNINGTON: I have nothing further to ask at the moment.

(Witness retired.)

FRANK WARNER, sworn, examined by Mr. CONNINGTON:—

1054. Where do you live?—At 141 Morehead-street, Redfern. I am 36 years of age.

1055. Have you answered one of those circulars sent out from your union?—No. I filled in one and gave it to my wife to post, but she neglected to post it.

1056. It has not been sent in?—No, but I found it there, the other evening.

1057. DEPUTY-PRESIDENT: The witness had better say how long he has been at the trade.

1058. Mr. CONNINGTON: How long have you been at the painting trade?—For seventeen years. It is seventeen years since I served my time. I was four years in the Public Service.

1059. Do you say you were four years away from the trade?—Yes, when I was in the Public Service.

1060. What work were you doing?—Store work in the Postmaster-General's Department.

1061. What are you doing now?—Painting.

1062. How long have you been back at the trade?—Since 1918.

1063. DEPUTY-PRESIDENT: Why did you leave the trade?—I thought I was leaded, and that was what made me get away from it.

1064. Mr. CONNINGTON: And after four years in the public service you have come back voluntarily to the painting trade?—Yes, I resigned from the stores.

1065. DEPUTY-PRESIDENT: Were you handling paints in the stores?—No, I was mostly packing and issuing stores.

1066. But not particularly paint stores?—No, there was very little paint used there; it was other stores.

1067. Mr. CONNINGTON: Have you been affected by lead-poisoning?—Yes. I had a doctor last year.

1068. Was that the first time?—No, I felt it before, but got away from the trade and thought that perhaps I might get rid of it altogether.

1069. You have only been away from the trade on the one occasion for four years?—Yes.

1070. Did you see a doctor before leaving the trade?—Not before I went to the Postal Department, but I saw one last year at the Sydney Hospital.

1071. But before going to the Postal Department?—No, but I had the symptoms—aches and pains in my jaws, and I have been losing my teeth one by one.

1072. But before you went to the public service did you see a doctor?—That was the start, on my teeth.

1073. Were you losing any working time?—Well, I used to feel a bit queer for a day or two, but not for any length of time.

1074. But have you lost days?—Yes, a day and a couple of days.

1075. Have you ever started a day and had to go home before the day was up?—I may have.

1076. You do not know?—No, I cannot remember.

1077. However, you felt queer and believed you were affected by lead-poisoning?—Yes.

1078. And you changed your work and got a position with the Postmaster-General, at which you remained for four years?—That is right.

1079. Did you leave that job to return to painting?—Yes, because the remuneration in the public service was not good enough for me to keep a wife and family upon.

1080. It was for the wages?—Yes.

1081. If you had been drawing the same wages——?—I would have stayed there.

1082. You are quite sure that is the reason for moving your employment?—Yes, that is what my motive was.

1083. DEPUTY-PRESIDENT: Have you ever made an application, for the Painters' Union, to the Court of Arbitration for an award?

1084. Mr. CONNINGTON: No, I have never appeared for them in that respect.

1085. In the painting trade is there very much loss of time through slackness of work?—Yes, I have done about three and a half months since December last.

1086. Would it not be better in the store?—No.

1087. Why not?—Because I was practically living in debt all the time. We were paid twice a month, and I was always waiting for the next pay. It was just about on a par with what I am doing now. I had to pay insurance there, which took something out of my wages, and other incidentals.

1088. Before leaving the painting trade to take up your other position, was the employment regular, or were there broken spells?—No, it was fairly good before the war.

1089. But there were some spells?—Yes, but not long ones such as there are now.

1090. Now things are very slack and you are losing a lot of time?—Yes, there is a great slump in the trade now.

1091. How long after coming back to the trade was it that you felt the sickness?—I felt it soon after I came back, but did not attribute it properly to that. I thought I might have a touch of rheumatism.

1092. While you were in the postal service did you feel any effects?—Yes, I still thought I had a touch of rheumatism there.

1093. Did you get pains in the joints?—I used to feel it in the kidneys also, and felt it as soon as I came back to the trade.

1094. How long after returning to the trade was it before you found it necessary to see a doctor?—Last year was the first occasion.

1095. Did you see a lodge doctor?—No, a doctor at the hospital. I could not afford lodges.

1096. You are not in a lodge?—No.

1097. What family have you?—I have five children.

1098. What doctor attended you when you went to the hospital?—I saw a lodge doctor, then the house doctor, and then I had to go to the Pathologist and get a blood test taken. I broke out in the arm, and they gave me a very vague answer when I asked them what was the trouble.

1099. The doctor submitted you to a test?—Yes, and I have had to stay at home from what they inoculated me with twice a week.

1100. How long have you continued that treatment?—I was supposed to go twice a week, but I had to wait and mess about so much I could not afford to lose the time.

1101. Then what happened?—I discontinued going, of my own accord.

1102. You had to knock off work to pay these visits to the specialist?—Yes.

1103. Then you kept on working. Did you ever see a doctor?—No, I could not afford to pay half-a-guinea to visit a doctor. The only remedy I had is to go into a hospital.

1104. After this treatment by the specialist, have you visited a hospital?—No, but I was going to take the day off because I felt queer.

1105. Has any doctor certified that you are suffering from lead-poisoning?—Not straight out. They would not tell me what was the matter with me last year at Sydney Hospital. I wanted to find out, because I know the symptoms myself.

1106. What are they?—Aches in all your joints and fingers, wrists, and gums.

1107. Have you the “blue” line?—Yes.

1108. Mr. CONNINGTON: I read one work in which it is stated that is an undeniable indication of lead-poisoning—that blue line.

1109. DEPUTY-PRESIDENT: As a Board, we will have to await medical evidence on the matter. Why should the hospital decline to inform a patient what he is suffering from?

1110. Mr. CONNINGTON: I do not know, I am sure.

1111. Why did you not see Dr. Nash; was it because the Workmen's Compensation Act would not have been much good to you?—No; I would not have got much out of that.

1112. You were looking for something to cure you?—That was what I wanted.

1113. You are 36 years of age and you feel that you are suffering from the effects of lead-poisoning, but you cannot afford time to see a doctor, and certainly cannot afford to lay up on the Workmen's Compensation Act allowance?—That is so.

1114. Why did you not go to Dr. Nash and get his certificate?—Then I might have had to lay up and it would have been no good to me. I was on and off work, but still I got more by that means than I would have got if I had laid up. I have to keep five children.

1115. Mr. CONNINGTON: The object of the witness is not to get £2 a week, but something to keep him and his family.

1116. DEPUTY-PRESIDENT: Would it not be at least a satisfaction to him to know whether or not he has the disease? He has convinced himself that he has got it. Would not that militate against the efficiency of his work?

1117. Mr. CONNINGTON: It is alleged in the works I have read that the last thing in the world these men are prepared to do is to admit that they are suffering—

1118. DEPUTY-PRESIDENT: To their employer. This is a question of the witness verifying his own diagnosis of his own case.

1119. Mr. CONNINGTON: The strange thing is that elsewhere it has been found to be the same, wherever inquiries have been made.

1120. DEPUTY-PRESIDENT: The witness has told himself he is suffering from lead-poisoning, so he is a marked man in his own mind. He can get what is regarded as high scientific opinion, provided at the expense of the State, and will not do it. He might find he is in error, and he would be a much happier man if he did find that is so.

1121. Mr. CONNINGTON: I agree entirely on that point.

1122. You believe you are suffering from lead-poisoning?—Yes.

1123. You would be glad to know you are not?—Yes, because I prefer painting to any other occupation. My heart is in the trade, and I would not like to go away from it provided I could be cured or fixed up better than I am now, anyway.

1124. Would you be prepared, not at your own expense, to submit to examination by any qualified medical man?—Yes, at any time.

1125. Mr. CONNINGTON: I think that perhaps the Board might see its way to recall the witness. We are inquiring into the matter of lead paints and here is a man who has never pretended that he is not suffering from lead-poisoning.

1126. You say you are willing to submit to examination at any time?—Yes.

1127. Has all your time been spent in Australia?—No, I have done painting work in France, and I was in the navy.

1128. While you were in France, what class of paint did you use?—All oxide of zinc.

1129. The laws were enforced prohibiting the use of lead?—There was no lead at all used in France.

1130. DEPUTY-PRESIDENT: When were you in France?—In 1909.

1131. Mr. CONNINGTON: Were you ever in Belgium?—I have been in ships lying there, and according to what I have been told by working painters in Belgium and Brussels they never used lead there.

1132. Mr. MANNING: That is rather vague. We know that lead is used there, and in abundance.

1133. DEPUTY-PRESIDENT: Of course, I am going to wait until we get evidence on these particular points before affecting any knowledge upon them; but it surely is unprofitable to ask a witness to give us any evidence with regard to the laws of any foreign country unless he is a person who has very strong reason to claim knowledge with respect to those laws.

1134. Mr. CONNINGTON: It was not the witness, but myself, who said it was the law, and later on I will refer to extracts from various publications which make it clear that the use of lead is prohibited in France.

1135. DEPUTY-PRESIDENT: If a question arises with regard to the condition of things in France I can facilitate your work, because I have had a search made and can have produced here at any time now the exact text of the laws on the subject. As a matter of fact, the law of 1909 was suspended until 1914, and then there was suspension until nearly the end of the war so that the prohibition against lead in France did not operate until 1918. I am open to receive any evidence which may be available on that.

1136. Mr. CONNINGTON: These writers refer to the prohibition as far back as 1913-14.

1137. DEPUTY-PRESIDENT: The gentleman who is responsible for the research in connection with the French law will be available to give evidence at any time at all, this afternoon if desired.

1138. MR. CONNINGTON: I am not questioning that. Anything that will suit you, Mr. Deputy-President, will suit me, on that subject.

1139. MR. MANNING: There is another thing which occurs to me. As to the French laws which have been mentioned, this reference is made to the Board for a specific purpose, and that is to ascertain what data can be afforded by New South Wales. For instance, it is not as if this Board had the duty delegated to it, as to conditions applying here. All it is asked to do is to give information as to the state of affairs in New South Wales. Perhaps it might shorten the inquiry a good deal if the evidence were confined to New South Wales. There is a communication from headquarters to the Commonwealth, and they are asked to give information to headquarters, and which will be available at the conference. The Commonwealth applied to the States and asked for the information; so we are really giving the information only as far as New South Wales is concerned.

1140. MR. CONNINGTON: It seems to me the Board has to make up its mind and give a decision of the question, Mr. Deputy-President.

1141. DEPUTY-PRESIDENT: The principal question of the reference is this:

"Is white-lead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient to regulate, restrict, or prohibit its use in paints or pigments?"

That is the question that primarily has relation to New South Wales, but perhaps not exclusively. Has Mr. Manning a copy of the reference?

1142. MR. MANNING: Yes, I had it.

1143. DEPUTY-PRESIDENT: There are incorporated with that particular question four other questions, which are as follows:—

- (1) In view of the fact that it is now technically possible to replace white-lead in painting by efficient substitutes, are you of opinion that a Draft Convention, prohibiting the use of white-lead in painting, should be submitted to the conference?
- (2) If so, do you consider that a period should be allowed before the prohibition would come into force? Please indicate what period you think necessary, and why?
- (3) What measures of supervision and control in the application of this prohibition do you suggest?
- (4) If your Government does not approve of a Draft Convention prohibiting the use of white-lead in painting, what measures do you propose in order to meet the dangers arising from its manufacture and use.

Then there is a footnote:

"In order to facilitate the task of preparation for the conference of 1921 please state: What legislative or other measures intended to diminish or remove the danger of lead-poisoning in house painting are at present in force in your country?"

Please supply, in addition, all the available statistical information, annual, if possible, since 1910, upon the following points:—

- A. (1) The number of house painters.
- (2) The number of cases of plumbism amongst house painters, classified, if possible, according to the form of illness, colic, paralysis, nephritis.
- B. (1) The number of persons employed in the lead and zinc industrial undertakings.
- (2) The output of lead and zinc.

1144. MR. MANNING: There is an introductory note to that pamphlet, and I submit that makes it clear all we are asked to do is to gain information as to the use of white-lead in paints in New South Wales. Why should we investigate the condition of affairs in Belgium or France. [*Reads introductory note.*]

1145. DEPUTY-PRESIDENT: You suggest that only the matter referred to in the footnote on page 32 should be dealt with at this inquiry; that is A (1) and (2) and B (1) and (2); and "What legislative or other measures intended to diminish or remove the danger of lead-poisoning in house painting are at present in force in your country?"

1146. MR. MANNING: I would not say necessarily to limit it to that, as to the subject-matters to be investigated, but within the range of the subjects to be investigated in New South Wales.

1147. DEPUTY-PRESIDENT: So far as your point may be defined to be this, that the Board should deal with the subject particularly in the light of local conditions, I agree with you. The reference itself says that the Board is to investigate and report upon all matters incidental thereto. The fact, to put an extreme case, that all the rest of the world except the State of New South Wales had prohibited the use of white-lead should be of the utmost importance to a Board holding an inquiry of this kind. I am putting the strongest possible case. The fact that some enlightened and highly civilised countries in the world have proscribed white-lead for certain reasons is material, in an incidental way, to this inquiry.

1148. MR. MANNING: Personally, I would suggest that really what they want is our experience here.

1149. DEPUTY-PRESIDENT: In the main, I think they do.

1150. MR. MANNING: If the criterions are adopted as suggested of the countries in the world—France is an enlightened country, and we may follow France—you do not get the benefit of original ideas, which are the only ideas worth bothering about. The French people may have, and have different conditions.

1151. DEPUTY-PRESIDENT: The difficulty may be this: perhaps we have not got the facts upon which can be based and constructed any original theory at all. If this were a country which kept industrial statistics in such a way as to enable us to say exactly to what extent plumbism is suffered by employees of different classes in the country I would agree with you, and say that inasmuch as all countries in the world are contributing information for the purposes of discussion in Geneva or elsewhere upon the propriety of prohibiting the use of white-lead, then they should confine themselves to matters which are pertinent to their own local conditions, and which arise out of their own local conditions. The moral that is to be drawn from practices abroad is not likely to affect persons who are endeavouring to construct a theory of their own upon the basis of facts ascertained with reference to the conditions in each particular country.

1152. MR. MANNING: Here the matter arises in a concrete form. Evidence is tendered that there is prohibition against the use of white-lead in France.

1153. MR. CONNINGTON: We have to establish that the use of white-lead is dangerous.

1154. MR. MANNING: The question is: is that relevant to this inquiry?

1155. DEPUTY-PRESIDENT: There is another question. The same inquiry was held in England in 1911 and 1914-5 up to 1920. The Blue and White papers which give the effect of that inquiry are available to us, and they deal with all technical matters, whether they be medical or industrial in character. Are we to shut our eyes to the effect of that evidence and start afresh to gather evidence on the same matter here?

1156. MR. MANNING: I do not suggest that. Any document containing evidence reduced into writing is valuable.

1157. DEPUTY-PRESIDENT: But surely matters affecting theory on legislation which is of a physiological and technical function must be taken into consideration?

1158. MR. MANNING: Only where they deal with facts common to the two countries.

1159. DEPUTY-PRESIDENT: The Board is not going to be carried off its feet by the fact that France has prohibited the use of white-lead.

1160. MR. CONNINGTON: We are establishing the fact that we suffer from lead-poisoning here.

1161. MR. MANNING: There is a lot of talk of its prohibition in France at the present time. I venture to say that we are entirely ignorant of the condition of affairs in France.

1162. DEPUTY-PRESIDENT: We are entirely ignorant as to the degree to which well-meaning laws and regulations are enforced. As a matter of fact, it is hard to say to what degree they are enforced in this country.

1163. MR. MANNING: If any importance is going to be attached to that, we would like to know now, because we may take steps to get some information from France upon the subject, as it is a very important matter.

1164. DEPUTY-PRESIDENT: Because your deputy, Mr. Sherwood, told us on the opening day that the law of France was ineffective and unenforced, I gave the Librarian of the Department of Labour and Industry instructions to make a search through the Department's Library of French legislation and regulations upon the matter. He has completed the search and is available now to give evidence. The gentleman is a Frenchman himself, and has read the laws in their original form as well as discovering them in translated form in the library. As far as that is available to us we should have it.

1165. MR. MANNING: As far as this witness is concerned, he is not the person to give evidence of that.

1166. DEPUTY-PRESIDENT: I think not.

1167. MR. MANNING: Then the Librarian can give useful evidence and information that would—

1168. DEPUTY-PRESIDENT: Only as a gentleman able to make research in foreign publications.

1169. MR. MANNING: It may be it is necessary to go behind him, and we are prepared to do that because we are here to discharge what we conceive to be a very important function.

1170. DEPUTY-PRESIDENT: I will indicate to you that he will give the text of the enactments and regulations which have been published under the Act in France. He does not know to what extent the enactment is enforced by the French Minister responsible for the regulations. I am sure he will not venture to say whether or not lead is in use in France at the present time.

1171. MR. CONNINGTON: The case we are endeavouring to put up is this: First we are establishing the fact that men do get leaded in Australia. The 120 names I have given *prima facie* seem to indicate that is so. Having established the fact that men do become leaded here, we are establishing what happens in other countries, and give well-recognised writers' opinions to support our view, to show that the use of lead should be prohibited. That is our case, and the only way we can put it to the Board.

1172. You have worked in France, and there white-lead was not used?—No, we never used lead on any of our jobs, and we had the finest class of work done, and it was always carried out in oxide of zinc. It gives a better finish.

1173. Where else have you worked?—I have worked pretty well all over the world.

1174. Have you worked in England?—I was in the navy and in the merchant service.

1175. Mr. COOPER: Were you a painter on board ship?—Yes. That is the only time I was in England.

1176. Mr. CONNINGTON: Were you a ship's painter or a member of the crew?—As a member of the crew and as the painter. Some liners carry a painter and some do not.

1177. With regard to New South Wales, how long have you been working here?—For ten years, since 1911.

1178. At house painting?—And ship painting also.

1179. At which have you done the majority of your work?—It would be about equal up to now.

1180. With regard to house-painting, interior work, what class of paint is generally used for that work?—There is a lot of the lead being done away with now in interior work. It is nearly all stained and varnished.

1181. When paint is used, is it lead paint?—There seems to be a tendency now to go on to Keystona or Flatene, or paints similar to those.

1182. Have you had experience with non-poisonous paint other than Keystona?—Yes, oxide of zinc used in its dry form; but that has not been in New South Wales.

1183. Have you used the non-poisonous paints here?—I have used them, but I cannot tell you their names.

1184. For interior work, for standard durability and efficiency, which, in your opinion, is best?—Any paint made from the zinc is best. In our case it is better to use zinc than lead, because it never changes colour; that is, near the coast.

1185. Do you seriously say that inland the zinc will give as good results as outside?—Yes. My view, and that of many others, is that zinc is far superior to lead. It keeps its tone, and everything else.

1186. For outside use?—Yes.

1187. How long will lead paint last—three years?—It all depends upon where you are painting. Inland it will last longer than on the coast. Then there is the quality of the lead also.

1188. I suppose that generally three years is fair for a coat of paint?—Yes, about three years.

1189. When you come to renovate and do a place up you go through the processes of rubbing down and preparing it for the brush?—You have to "pumice" it first.

1190. Have you ever had to prepare for painting a place which had been done previously in zinc?—I have never done any in this country, unless it was on shipping work. I have done it there.

1191. Then you would have to go through the process of rubbing down?—Yes.

1192. One witness was asked about a sponge. Are sponges ever used?—You would want a pair of spectacles to see them with. They would never supply you with sponges.

1193. With regard to the oxide paint, the rubbing down, &c., have you done any of that on the ships?—Yes, you always do rubbing down on the ships.

1194. And from your point of view, is the operation likely to be less harmful?—No, it is more harmful there on account of the space.

1195. If you were rubbing down lead paint, which is most harmful to you?—The lead, every time, because you are inhaling the dust.

Cross-examined by Mr. MANNING:—

1196. Have you ever experienced zinc inland at all?—I have seen it used inland.

1197. In this country?—No, I cannot say I have seen it here, but I have seen it in England.

1198. How long ago?—I suppose about twelve years ago.

1199. That will be the last time you saw it?—Yes, that was the last time.

1200. That was the only time you saw it?—No, I have seen it prior to that.

1201. How often have you seen it previously?—I have not seen it a great deal—

1202. I do not know what a “great deal” means. Tell me how often you had seen it previously, so far as you can recollect?—I suppose four years before that.

1203. You have seen it six years ago, and again ten years ago. How long is it, first of all, since you say you first saw zinc used inland in England?—About 1910, eleven years ago.

1204. Is that the only occasion when you have seen it used inland?—No, I have seen it—

1205. How many times?—Four years previously, and on various occasions.

1206. Once ten years ago, and once fourteen years ago. Was there any other occasion?—I have seen it on various occasions when I was there.

1207. That is fourteen years ago?—Yes.

1208. Is that all you have to say on the subject?—I have used it myself in ships.

1209. But I am asking you about the use of it inland?—Those are the only two occasions I can remember, myself.

1210. On those two occasions, did you put it on, yourself?—Yes.

1211. Did you go back afterwards and see it?—Yes.

1212. Taking the occasion ten years ago, how long afterwards did you see it?—I never saw it again, but the one fourteen years ago I did.

1213. It comes back to your recollection now that certain zinc which you put on a surface fourteen years ago you went back and saw?—Four years after I saw it.

1214. Was the same paint on the door?—Yes.

1215. What means had you of identifying it as the same paint?—The place had not been touched.

1216. But you had not been there for four years?—I am telling you I was there four years afterwards—

1217. Kindly listen to my question. You say you put it on. Then I understand you to say that you saw the same paint four years afterwards?—Yes.

1218. I am asking you how you know you saw four years afterwards the same paint that you put on?—Because nothing had been applied—

1219. How do you know it had not been taken off and another coat put on?—Because the place had not been done up.

1220. How do you know that?—I was told so.

1221. Did you ask the people if it had been done up?—Yes.

1222. How did you come to ask?—For business.

1223. How do you mean for business purposes?—Because I wanted to get the job of putting it on again.

1224. Can you give me any information about the place you saw ten years ago?—No, because I have always worked to give a fair deal, and—

1225. Who are these people?—They are people in England.

1226. Who are they?—I can write.

1227. But who are they; did you ever go back four years afterwards;—I ask you, on your oath, did you go back to those people four years afterwards and ask them if that house had been done up in the meantime?—Yes, I did.

1228. Will you swear you asked those people four years afterwards whether the house had been done up in the meantime?—They may have been telling me wrong, but—

1229. I am asking you, did you ask them?—Yes, I did ask them.

1230. Will you swear you went to the place where you put on zinc oxide, four years afterwards, and asked if the place had been done up in the meantime?—Yes, I swear that.

1231. And you do not know if they had been lying to you?—I cannot say that.

(At 4 o'clock the Board adjourned until 10 a.m. the following day.)

THIRD SITTING.

WEDNESDAY, 29 JUNE, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER

MR. WILLINGTON

DEPUTY-PRESIDENT: I have arranged with Dr. Nash to attend at 10.15 for the purpose of giving us the results of his experience as certifying surgeon in connection with the subject of lead-poisoning amongst painters.

MR. CONNINGTON: While we are waiting for the arrival of the doctor, I would like to mention that since the adjournment yesterday afternoon, Mr. O'Brien and I have considered your remarks made yesterday with regard to this evidence we are putting forward by way of returns. We quite agree that, from the standpoint of Mr. Manning's clients, it will be necessary for them to satisfy themselves that in each case where the return shows that a man is suffering from lead-poisoning they should have an assurance on the point from a medical man of whom they approve. Then it came to this, that if every member of the organisation filled in one of these circulars, and it was within our power to give them to the Board, that objection from Mr. Manning's clients would still be as strong as it is to-day. That is to say, if the whole of our members filled in returns setting out whether they thought that they were affected—

DEPUTY-PRESIDENT: I think you are wrong with regard to Mr. Manning's view. Mr. Manning has no objection to your members saying what they think is the condition of their health, but he objects to them being treated as being diagnosed to be subjects of lead-poisoning.

MR. CONNINGTON: That would be the same thing, from my point of view.

DEPUTY-PRESIDENT: I know it would. Your members can say they are as sick as they find themselves to be, but if they attribute their sickness to a specific cause, such as lead, then you are at once at issue with Mr. Manning.

MR. CONNINGTON: That is the point.

DEPUTY-PRESIDENT: What are you going to do? Are you going to get a return from your members as to the condition of their health, or do you want to go further and say that the condition of their health is due to lead?

MR. CONNINGTON: No. What I was going to suggest was this: I was just pointing out that if the whole of our members filled in these returns and said that they were suffering from lead, Mr. Manning would still say that the Board should not be bound by their reports, in so far as he would like the cases to be tested by approved doctors.

DEPUTY-PRESIDENT: Then the Board's position in the matter at once must be considered. If you put a return before the Board which alleges that the indisposition of each of these men is due to lead, the Board must ask itself what is the value of that return.

MR. CONNINGTON: I agree. Supposing that the union engaged one or three doctors, and that those doctors certified that a certain number of the men were suffering from lead-poisoning, Mr. Manning might still say he would like proof of it to be given by a doctor of whom he approves, or had some hand in selecting, or else somebody appointed from a neutral source. The union is very anxious that the whole industry should be investigated from the standpoint of the ill-effects of lead-poisoning on the members generally. If the Board could do this—and I think the Board can do what neither of the parties can do, with more satisfaction to the public and to the country generally—if the Board will appoint a doctor or doctors who are prepared to investigate the conditions in the painting trade, and to examine the men occupied, the union will assist to its utmost to provide the men to come before the doctors for the purpose of examination. I think that itself will give you a reservoir to tap which is more extensive and likely to lead to more valuable results than any other commission has yet had. We start off by giving you these 120 men; we say further that if your doctors will attend a room at the Trades Hall, or some place convenient to the men, there are another hundred men who are out of employment at the present time who can be inspected at any time that the doctors choose to come along and make the inspection. The union will use its utmost endeavours to get every member of the union, whether affected or alleged to be affected, to come along for the purpose of examination. It is possible that if the Board will take this step the Board will have a supply of 500 or 600 men to work on. By the Board appointing a doctor or doctors neither Mr. Manning nor the union can complain, because we must assume that the Board is neutral and is guided only by the desire to get at the real facts with regard to the question at issue.

DEPUTY-PRESIDENT: I think your suggestion is a very good one. As a matter of fact, I am inclined to the opinion that unless some independent technical inquiry of that kind is made the Board will ultimately be without the information that it ought to have as a basis for any report that it may make to the Government upon the question of the prevalence of lead-poisoning amongst painters.

MR. MANNING: While Mr. Connington was making this suggestion it occurred to me, where would this lead to, and what ultimate result would be obtained? Do not think for a moment that I am opposing this, because I am not. I am just pondering to see where the thing will lead to. It may be useful, and it may be useless, and its utility depends upon the point whether Mr. Connington is able to vouch that the people who will be available for examination will constitute the whole of the people who are *bona-fide* engaged in the painting industry.

DEPUTY-PRESIDENT: I had that in my mind when I suggested that his proposal was proper. The independent authority would have to choose his own subjects for inquiry. It probably would not go through the whole personnel of the union, but it would have to make an independent selection of a number of men who would represent the conditions of the industry. The union could not contribute to the selection in any way at all. The

authority itself would have to select in such a way as to ensure that the results would be scientifically accurate.

MR. MANNING: Yes, and for that purpose I should imagine very accurate information would have to be supplied to the Board by the union.

MR. CONNINGTON: We would supply no information. We would supply the people who would come along.

MR. MANNING: I mean information as to the extent of the membership of the union, for instance, and the areas within which those individuals work. If this suggestion is adopted, it is a very important step in the inquiry, I suggest, and it should not be taken without giving it a good deal of antecedent thought, because on that depends whether it is going to be of any utility or not to the Board. For instance, a doctor going down to the Trades Hall and examining half a dozen men, and saying that they do or do not suffer does not lead to anything. The question for this Board is, I think, a question very largely of percentage. For instance, I do not suppose the evidence that was given yesterday is of much value to anybody, because it does not lead to anything.

DEPUTY-PRESIDENT: The evidence given yesterday indicates that three or four gentlemen are probably suffering from plumbism, and that those gentlemen have in the main occupied themselves with the trade of painting.

MR. MANNING: Yes. One must not lose sight of the extent of the operations that are being inquired into. For instance, if one attributed any importance to yesterday's evidence, if it stood alone, it would be judging the whole painting trade from those four witnesses.

MR. CONNINGTON: No one suggests that. We tell you that we are satisfied we must go further.

MR. MANNING: I understood Mr. Connington to say that he had five witnesses he was going to call on that subject.

MR. CONNINGTON: To establish that there is such a thing as lead-poisoning.

MR. MANNING: I am not criticising Mr. Connington. I am only suggesting that we do not want to waste time. I do not mean to say that yesterday's operations are useless, but they have to go a long way further before they will be of any use. They are useful as a study, perhaps, but I do not suppose they are of much use to anybody if they stop there. Mr. Connington said he was going to call five witnesses. Well, he has called four. I am only making this as a suggestion. If I am wrong, well and good; I invite Mr. Connington or any member of the Board to correct me. It does seem to me that the matter has to be kept in true perspective, otherwise we shall be embarking upon a branch inquiry which will lead us nowhere. If Mr. Connington's suggestion is adopted, the first thing is to find out the exact limits, as far as possible, of the union. The number, the ages, and where the people operate; for instance, if they belong to lodges, let them produce their lodge book and their prescriptions and the names of the doctors who have attended them in the past.

DEPUTY-PRESIDENT: It will be necessary for a scientific authority making the inquiry suggested to take the industrial history of every man physically examined. There would have to be a record of the industrial history in each case.

MR. MANNING: Yes, and then, if that is done, I do not imagine that a report in itself by that authority would be quite so valuable; of course, it would be valuable in any case, but it would be still more valuable if the authority that was constituted gave their conclusions in the form of evidence, so that if any of us wanted to ask any further questions on it we could do so. Subject to those qualifications, I do not imagine that the

course suggested has any drawback as far as we can see at present. Of course, it may be that there are difficulties which will appear as one becomes more familiar with the subject.

DEPUTY-PRESIDENT: The method of making this medical inquiry will be all important, and that is what you are discussing?

MR. MANNING: Yes.

DEPUTY-PRESIDENT: Unless the method is sound the results will be unsound.

MR. MANNING: Absolutely unsound. Probably neither this Board nor the Convention would take very much notice of it unless it was apparent that it was organised on scientific lines.

MR. CONNINGTON: The Board might suggest a way. We are quite neutral, and we wish only to find out facts. We believe the trade is a dangerous one, but we shall be pleased to know that it is not. We say to the Board we will give you assistance. I cannot find that any other board has ever been offered the same assistance as we are offering now. I am not so foolish as to think, and Mr. Manning cannot make me believe that he thinks, that the Board will decide to recommend the prohibition of white-lead on the evidence of four or five persons. They happen to be four or five of 120 who have sent in returns. They are the ideal to establish the fact *prima facie* that the disease does exist in Australia. Then we tell the Board where you can get the fullest information on the point. We cannot by way of evidence satisfy the Board. We should be calling witnesses from now until doomsday.

DEPUTY-PRESIDENT: You are not quite correct in suggesting that no Commission of Inquiry has ever had the assistance that you are now offering to this Board. The Board as a Commission of Inquiry instituted proceedings upon the health conditions upon which the health conditions at Broken Hill were ascertained. It had the assistance of a technical medical commission, and the union at Broken Hill was good enough to facilitate the work of that Commission in every way. Some 4,000 men were clinically and radioscopically examined, and the results I do not think can be challenged from a scientific standpoint in any way.

MR. CONNINGTON: I am referring to the particular question before you.

DEPUTY-PRESIDENT: We are glad to have your assurance that the union will co-operate with the Board if any such medical inquiry is set on foot. At the same time, while I express my own opinion merely at this moment, it is necessary to add that the Board can only make a recommendation that the resources of the State should be applied to the purpose of such a scientific inquiry, and a recommendation to the Board to that effect may be met with the answer that there are no funds available with which to carry on the inquiry. If the Board finds itself then compelled to hold the inquiry without the assistance of a technical committee, it must do the best that it can in the circumstances.

MR. CONNINGTON: Then all we can do is to bring along the evidence where we think the evidence is to be found. If you will indicate how you would like to have the evidence brought before you we shall do our best to do as you desire.

DEPUTY-PRESIDENT: Now that you have raised the matter, I would like the representatives of the two interests before the Board to consider whether the Board should be urged jointly by them to make representations to the Government for the institution of a technical branch of the inquiry that is in progress. If you and Mr. Manning can discuss the matter between yourselves and find yourselves in accord upon it—that is, if Mr. Manning is

assured that the method that will be ultimately recommended by the Board will be sound—then your joint representations to the Board will no doubt strengthen the hands of the Board should it recommend, in an interim report, that the Government should take the step of instructing medical gentlemen to help the Board in its inquiry.

MR. WILLINGTON: I would like to mention that I feel it is desirable also, seeing that the reference deals with the future as well as the present, that there may be a question of means for alleviating the difficulties in the use of whitelead, and perhaps medical evidence may be given to show that it could to a large extent be prevented by care. So far as the investigation into the health of the members of the union at the present time is concerned, that is a matter of the past. A point to be considered is: how can it be dealt with in the future? Can the noxious circumstances connected with the use of lead be prevented, and in what way?

DEPUTY-PRESIDENT: An inquiry is not necessary to enable the doctors to qualify to give evidence in that connection, I take it. So far as the actual health facts are concerned, men must be examined before anyone can speak with regard to them.

MR. MANNING: The suggestion made is one that gives us a lot more confidence in the way we are conducting our case, because we contemplated going into that question, and hence I was asking a few questions of those witnesses yesterday. One likes to give an indication of one's case as early as possible. Of course, that was only in one or two instances; that was the mere fringe of the subject. We propose to have it dealt with quite scientifically. I think it might be more convenient if that were done by ordinary witnesses before this Board, rather than have a subsidiary board appointed. Of course, I am in the hands of the Board in the matter. If you gentlemen think it will be better to have it delegated to the hands of some subordinate power, well and good.

MR. WILLINGTON: If you are content with that, Mr. Manning, I am satisfied.

DEPUTY-PRESIDENT: In connection with the suggestion made by Mr. Manning, I would like to refer the parties to the report of a clinical study of frequency of lead, turpentine, and benzine poisoning in 402 painters. The study was made by the Bureau of Preventible Disease, New York State Department of Health, and the results of the study are published in the archives of internal medicine for August, 1918, and are reprinted in pamphlet form by the American Medical Association of Chicago. A condensed form of the report is in my hands, and is published at pages 226 to 229 of the Monthly Labour Review for March, 1919, that review being a monthly publication of the United States Department of Labour, Bureau of Labour Statistics. It is an authoritative publication; that is, it is an official governmental publication, printed at Washington. I will make this book available to both of you gentlemen if you would like to see what is contained in the condensed report.

MR. CONNINGTON: Before commencing with the evidence this morning, I propose tendering to the Board type-written copies of extracts from various works dealing with the question of lead-poisoning in connection with house-painting. I have them marked from A to J, and they will be referred to by me later, when we have finished with the witnesses. I will give Mr. Manning a copy.

DEPUTY-PRESIDENT: This again is not an exhibit, but a written statement of the form of one portion of your case. I understand that Dr. Nash is present now, and I think it advisable to take his evidence now.

JOHN BRADY NASH, sworn, examined as under:—

1232. DEPUTY-PRESIDENT: You are a M.D.—Yes, of Edinburgh and Sydney.

1233. You are a legally qualified medical practitioner of this State?—Yes.

1234. You practice in Macquarie-street, Sydney?—Yes, at 219 Macquarie-street, Sydney.

1235. How long have you been in practice in this State?—Thirty-eight years.

1236. You were sometime ago appointed under the Workmen's Compensation Act of 1916, as certifying surgeon for a portion of the State?—Yes.

1237. Can you tell me what area your authority covers as certifying surgeon?—I could not say that.

1238. At any rate it covers the metropolitan district?—I think so.

1239. You were appointed, I understand, under section 14 (1) of the Workmen's Compensation Act of 1916, No. 71, the words of the section being: "The Minister may appoint such legally qualified medical practitioners as he may determine to be certifying surgeons for the purposes of this Act, and may appoint districts in which such surgeons shall discharge their duties and may alter the boundaries of any such districts?"—Yes.

1240. Mr. CONNINGTON: Under that Act lead-poisoning is in the schedule at page 28.

1241. DEPUTY-PRESIDENT: Schedule 3 of the Act is in two columns, the first of which refers to lead-poisoning or its sequelæ, and opposite to that item is the description of process in these terms: "Any process involving the use of lead or its preparations or compounds." There is another entry of lead in the left-hand column in the same terms, but having opposite to it different terms of description of process; the terms of the description of process in the second case are "handling of lead, or its preparations or compounds." The Board of Trade is holding an inquiry on a Ministerial reference, the main purpose of which is to ascertain whether white-lead as used in the painting industry is so injurious to painters or other workers engaged in the industry that it is expedient or necessary to regulate or restrict its use in paints or pigments. We shall be glad to have the benefit of such evidence as you can give us in the light of your experience as certifying surgeon under the Act—the experience that you have had in dealing with claims for compensation by painters particularly who believe themselves or who are found to be suffering from plumbism. Were you the first certifying surgeon appointed under the Act?—No. The first case I examined was on the 10th September, 1918.

1242. Can you tell us when you first received your appointment?—Some short time before that; not long before; sometime during the middle or end of 1918. The 10th September is the first entry I have of a case sent to me. All cases are sent from here or elsewhere to me for examination and report. They come in irregularly. Sometimes I send them round here to see that they are correct.

1243. That is, you send them to the Department of Labour and Industry, from which, in the main, they come?—Yes, in order that there may be some authority behind them. For instance, a man comes to me and says, "I met a man down the street and he told me to come here." I say that is not satisfactory to me; that is no authority. I always send them round here and then they are sent to me from here, and I am able to deal with them properly.

1244. That is, in effect, you examine them only when you have the Minister's authority to examine them and to exercise your functions under the Act?—Yes.

1245. Can you give us a list of the cases you have examined?—I looked roughly through my book this morning, but I had not time to go through my notes. Up to the 15th March there are about twenty cases I have seen on account of the Department.

1246. That is before the 15th March of this year?—Up to the 15th March. The 10th September, 1918, is the first entry I have and the 15th March is the last entry. In looking through the entries, I reckon there are about twenty cases of lead-poisoning or plumbism in that interval.

1247. Those would be cases derived from all industries and occupations?—Yes, I should say so; house-painting, ship-painting, and all sorts of things.

1248. From the plumbing industry and the lead-manufacturing industry?—I should not say plumbing, but there may be. I suppose by plumbing you mean the people who attend to drains and that sort of thing?

1249. Yes, people who are handling metallic lead?—They are all handling solid lead, which is an entirely different proposition. People do not get it by handling lead itself. It would be an exceedingly uncommon thing to happen, because lead does not shed itself when it is solid. It is only when it is used in very finely-divided particles that it is very dangerous. In lead-mining, where they are using picks, the lead is minutely divided, and a man can get it there if he is not careful. The first experience I ever had was with regard to beer-drinkers. Men who drink beer get lead-poisoning from the lead pipes which connect the barrels with the syphons. You know how beer is pulled—it is handled and pumped. People go there the first thing in the morning for a drink of beer. In my professional practice I have seen men—soakers—who go round in the morning and get the first drink out of the lead pipe—they get plumbism.

1250. So that the man who takes the first drink is sacrificing himself for the benefit of his community?—I do not know anything about that, but I know he gets lead-poisoning. Afterwards lead-poisoning became very prominent in the industrial districts when Broken Hill was opened up. A third period when it became very common was when the sulphide works were started at Newcastle and lead began to be treated there. In the case of the beer the lead comes off the pipes, and it is dissolved by the material in the beer, and it is got that way. Men working at Broken Hill produce it at the point of the pick, and in that process they get it on to their hands in finely-divided particles. It is possible, of course, but not very probable that lead is fine enough to get into the atmosphere, because lead is very heavy. In the sulphide works the lead was extremely finely-divided, because of the chemical processes by which it was being treated. The men got very seriously poisoned there in the early stages of what is known as C.C.R.P. works on the banks of Cockle Creek at Newcastle. I lived near there at that time and was practising at Wallsend, and I used to see very numerous cases. After I came to Sydney I did not see many cases, because they did not come under my observation until I was asked to take a position as certifying surgeon, and then about twenty cases have appeared since.

1251. Have you the details of those cases before you?—I have them in my note-book. Every case that comes to me I enter up in my private note-book, and I have the details in my note-book.

1252. Can you give us the effect of your notes without disclosing the identity of the person; that is, identifying the person by number instead of name?—Quite easily, if you wish it.

1253. The series is not a long series?—No.

1254. Could you attend with your note book and give us such information as will enable us to identify the man with his symptoms?—Yes, quite easily.

1255. And to ascertain the degree of severity of the disease from which he is suffering?—Yes.

1256. MR. MANNING: Perhaps if the doctor had no objection he might allow the board to see the note book, and possibly Mr. Connington and myself. Certainly the Board might be allowed to see it, unless the doctor has some objection to it.

1257. Have you any objection to making your note book available for the use of the Board, and also for perusal by myself and Mr. Connington?—I do not care about letting you see it. There are heaps of cases mixed up in my note book, and I do not care about letting the note book out of my possession. There would be no difficulty in making extracts of what you would like. My note book contains confidential matter between my patients and myself.

1258. DEPUTY-PRESIDENT: We have a reporter here, and I thought that if you brought your note book it would really facilitate your work of analysing or digesting the references to those particular cases.

1259. MR. MANNING: Perhaps it could be sent up for now to the doctor's rooms?

1260. WITNESS: That would be the better way.

1261. DEPUTY-PRESIDENT: Mr. Woodham, my secretary, will go up there, if you will give him a note to do so?—I would prefer to bring it here at 2 o'clock.

1262. Then we had better make an arrangement for you to return at 2 o'clock with your note book?—Very well. I might say I have seen cases of every degree of severity in this period. I have been out to Gladesville Asylum and to Callan Park Asylum, and have seen men there in the very last stages of plumbism. I have also seen cases in my rooms where there has been a considerable dispute amongst the doctors as to whether they were cases of plumbism or not, and specialists in nerve diseases have gone to the courts on this matter.

1263. Some of the cases have been litigated?—Yes.

1264. We shall release you now, and will expect to see you again at 2 o'clock this afternoon?—Very well.

(Witness retired.)

1265. DEPUTY-PRESIDENT: Mr. Connington, you were about to describe these documents which you handed to the Board when you were interrupted.

1266. MR. CONNINGTON: Yes. You will notice that the folio marked "A" refers to dangerous trades, an article by Sir Thomas Oliver, which is to be found on pages 333 to 337 in a volume entitled "Dangerous Trades"; I have it here. The edition is an edition of 1902. Statement "B" is a report made by Mr. O'Brien to a Committee of the Painters' Union, which was appointed to inquire into the question of lead-poisoning among members. It purports to show the searches and inquiries made by Mr. O'Brien, who was the secretary of the Union at the time.

1267. DEPUTY-PRESIDENT: Of course you do not offer Mr. O'Brien's remarks as those of a scientific witness. I mean, Mr. O'Brien will be able to go into the witness box to give us, in the form of ordinary evidence, the effect of his research in the matter.

1268. MR. CONNINGTON: Yes. It is information that the Parliamentary Committee would accept, if not act upon. That is the sort of evidence which Mr. O'Brien will give you.

1269. MR. MANNING: I was just having a look at that document. I have not had time to go through it and see what it contains, but from its appearance it seems to contain a statement of a lot of facts for which there is no authority.

1270. DEPUTY-PRESIDENT: The whole document is in the nature of an opening speech. I take it that Mr. Connington will not aver anything that he cannot subsequently prove.

1271. Mr. CONNINGTON: No.

1272. Mr. MANNING: For instance, where it alleges that John Smith was suffering from plumbism in 1918; that must be excised unless they put John Smith in the box.

1273. Mr. CONNINGTON: There is nothing like that in the report.

1274. Mr. MANNING: As I say, I have not had time to go through it, but it seemed to me to have the appearance of containing some statements of fact; I am not sure of it.

1275. Mr. CONNINGTON: No, that is not so. Statement "C" is an article dealing with diseases of occupation and vocational hygiene by Kober and Hanson. The pages that I have made extracts from are pages 515 to 517 inclusive. You will find that on a section of the statement marked "C." Statement "D" is an article from pages 517 and 518 of the same work of the same authors, dealing with the cases of lead-poisoning amongst painters. Statement "E" is an article from pages 115 to 117 inclusive of the same work by the same authors, dealing with the painting trade generally. Statement "F" is an article from pages 80 and 81 of the same work, dealing with the same question. Statement "G" is an extract from page 308 of the work by Sir Thomas Oliver, referring to the question of insanity amongst work people, and sets out a table of 133 classified trades. There were 3,500 male patients in the hospital suffering from insanity, and amongst them were 1,331 who had apparently suffered from lead-poisoning.

1276. DEPUTY-PRESIDENT: Did you collect the information with regard to the hospitals for the insane in New South Wales?

1277. Mr. CONNINGTON: Mr. O'Brien will tell you all he has endeavoured to do in that regard.

1278. DEPUTY-PRESIDENT: Has an inquiry been made at his suggestion in administrative circles with regard to the number of painters under control in the mental hospitals?

1279. Mr. CONNINGTON: No, I do not think so. He found difficulty in this way: he made inquiries at various hospitals and at the Statistician's office some two years ago, but there were no statistics available as to the prevalence of the disease amongst the painters or any of the trades. That is one of the things which the State seems to be lacking in. Statements "G" and "H" contain extracts from the work by Sir Thomas Oliver, being a short article dealing with coach painting. It says there that plumbism occurs in connection with coach painting. Statement "I" is an article which deals with lead-poisoning, extracted from the Brisbane "Courier" with regard to a deputation which waited upon the Government asking for the prohibition or the restriction of the use of white-lead. Statement "J" contains a copy of an article which appeared in the "Daily Standard," a report of a conference between the Home Secretary, Queensland, with various trades asking for the prohibition of lead, and pointing out its very bad effect upon the children of persons who have been affected with the disease. I also hand in a copy of an article appearing in volume 120 of the United States Bureau, Labour statistics, page 49; there is a short article there dealing with lead-poisoning. I have another short table extracted from page 47 of the same volume, dealing with the cases of plumbism amongst coach painters, painting generally, and ship painters. I have also a copy of a short passage taken from the same volume, dealing with the question of prohibition of lead, and winding up as follows: "The total prohibition of lead for use in interior work would do more than

anything else to improve conditions in the painting trade." It is merely a suggestion appearing in the journal.

1280. Mr. MANNING: I have not had an opportunity of going into anything yet, but it seems to me that these statements contain a tremendous lot of stuff that Mr. Connington can never hope to give any reliable evidence of. It is a novel idea to put information such as appears in the last document before the Board in a typewritten document which is produced by the advocate at the table, and having no authority.

1281. DEPUTY-PRESIDENT: I regard these as notes for a speech, in which one deals not only with the evidence, but comprehensively with what is authoritatively published on the subject abroad. To what extent it will assist the Board is a perfectly open question.

1282. Mr. MANNING: The only thing is that it is always dangerous to have a collection of documents like this before the Board, a lot of which they have to disregard.

1283. DEPUTY-PRESIDENT: They are not exhibits.

1284. Mr. MANNING: No. I am only drawing attention to it now because it foreshadows probably what I shall have to say about them when I have time to read them.

1285. Mr. CONNINGTON: I am afraid my friend will have to refer to many authorities in the same way as I am doing.

1286. Mr. MANNING: You can do it in different ways.

1287. Mr. CONNINGTON: I can do it by reading from a book, as he probably will do, and leaving the Board to gather what it can from my reading. It is to assist the Board and Mr. Manning that we have taken the trouble to have reprinted beforehand the passages to which we intend to refer later. If Mr. Manning will help me to that extent I shall be very grateful.

1288. Mr. MANNING: I am not criticising you at all. I am only offering some criticism about the value that this material will have.

1289. DEPUTY-PRESIDENT: Mr. Manning is warning the Board that he will have to attack the value of this information you are putting before the Board.

1290. Mr. CONNINGTON: I cannot vouch for anything. All I say is that these are from important publications. These people have dealt with the same question as you are dealing with, and here are their opinions. If you regard their opinions as valueless, then the evidence I am putting now before you is of no value. If, on the other hand, their opinions are of value, and will assist the Board, I shall have performed a useful service. It is for the Board to determine whether these authorities I am referring to are of any assistance to the Board.

1291. Mr. MANNING: I am not offering any opposition to them at present.

1292. DEPUTY-PRESIDENT: Mr. Connington has provided us with the extracts in order that we may be facilitated in paying attention to the extracts when he reads them and incorporates them in his address to the Board.

1293. Mr. CONNINGTON: Yes, it is all on the subject. I have another return from the Bulletin statistics, vol. 120 of 1913, page 61, which deals with the laws and regulations with regard to the use of white-lead paints in European countries. It has taken a good deal of research and trouble to find these things. If they are valueless from the point of view of the Board some other people may have thought them of value, because we had difficulty in getting the documents.

1294. DEPUTY-PRESIDENT: You can go straight through with your case, Mr. Connington. Where you exceed the limits of fair quotation you will be called to account.

1295. Mr. CONNINGTON: I propose now to put Mr. O'Brien in the box. He is the secretary of the Union, and he ought to have a good general knowledge of the feeling of the men and of what is happening in the industry.

1296. DEPUTY-PRESIDENT: Before Mr. O'Brien goes into the box, Mr. Perdriau, of the Department of Labour and Industry, is here, and he can tell us exactly when Dr. Nash was appointed; and whether there were any persons who held the position of certifying surgeon before he was appointed; that is, whether Dr. Nash is able to give us the result of public experience of the handling of claims for compensation in respect of plumbism in the metropolitan district.

RALPH JOSEPH PERDRIAU, sworn, and examined as under:—

1297. DEPUTY-PRESIDENT: What are you?—I am professional clerk of the Department of Labour and Industry.

1298. As such are you entrusted with work connected with the administration of the Workmen's Compensation Act?—Yes.

1299. Can you produce a copy of the *Gazette* showing the date on which Dr. Nash was appointed as certifying surgeon under that Act?—Yes. [*Producing document.*] Dr. Nash was appointed on the 24th January, 1918.

1300. Was Dr. Nash the first medical officer appointed under the Act for the metropolitan district?—Yes.

1301. Can you tell us what district he controls as certifying surgeon?—The District Courts, Metropolitan District; the boundaries defined by proclamation under the District Courts Act.

1302. Can you tell us, roughly, what the district includes in the way of area?—No. It is a pretty technical description. I can produce a map showing the district.

1303. I suggest that we should know from what area the persons are drawn who seek the assistance of Dr. Nash. If the general boundaries of the district are understood, one does not need to go into more detail. Can you say whether the northern boundary of the district touches Gosford?—I think the Hawkesbury River is the northern boundary.

1304. Can you identify the western point of the northern boundary?—No.

1305. Perhaps it will be useful if you will exhibit the map to us?—Very well.

1306. Mr. MANNING: I suppose it will be about midway between here and Parramatta.

1307. DEPUTY-PRESIDENT: I am not familiar with the District Court boundaries.

1308. What would happen if a case came from Parramatta to the Department;—would the Department refer it to Dr. Nash or to some other department?—We would have to get a special medical officer appointed in that district.

1309. Is there one?—No.

1310. How many certifying surgeons are there at the present time?—About eight or ten, I think, in different districts.

1311. Can you give us their names and the districts over which they operate?—Yes. Dr. John Kerr, of Wollongong, for the Wollongong District Court district. Dr. R. G. Alcorn, East Maitland. I might say that these are all for the District Court districts. Dr. A. S. Bowman, Singleton; Dr. B. Middleton, Murrurundi; Dr. F. H. May, Gunnedah—Dr. May is now deceased, and Dr. Bruce McBeith has now been appointed in his place;

Dr. A. Hutley, Lithgow; Dr. Robert Roger, Muswellbrook; Dr. W. R. C. Beeston, Newcastle; Dr. Clarence Reiger, of Broken Hill.

1312. Will you refer the Board to the section of the Act and the section of the Regulations which prescribe the functions of the certifying surgeon?—Section 12 of the Act deals with industrial diseases, and the diseases themselves are specified in schedule 3.

1313. Are there regulations affecting the purport of section 12?—Yes. Part 2 contains the regulations: "The duties and fees of certifying and other surgeons and referees to remuneration of expenses of medical references under section 12 of the Act."

1314. Will you describe colloquially the functions of the certifying surgeon?—When a case is sent to a certifying surgeon, his duty is to certify that the man is suffering from one of the diseases specified in the schedule—in this case it would be lead-poisoning—and that he is disabled thereby from earning full wages at the work at which he is employed.

1315. Who sends the man to the certifying surgeon?—In most cases the men are sent, I think, by the union secretary. He generally refers them back to the Department for an authority to examine, which is supplied by the Department.

1316. So that in effect the Minister refers the patient to the certifying surgeon?—Yes, that is the procedure.

1317. Is the Minister responsible for the cost of the examination?—Yes. It is provided in section 14 of the Act that the remuneration and other expenses incurred by certifying surgeons and referees under this Act shall, subject to regulations made hereunder, be paid out of moneys provided by Parliament.

1318. So that there is no reason why a man who feels or fears that he is suffering from Plumbism should not get an examination from the certifying surgeon without cost to himself?—None whatever.

1319. Is it on record in the Department that certain men have applied for reference to the certifying surgeon;—are there departmental statistics showing how many persons have applied for reference of their cases to the certifying surgeon?—We have not recorded them in regular form, but the information could be got from the vouchers of the certifying surgeon.

1320. But no tabulation has been made to indicate the risks of industries as known to those who are administering the Workmen's Compensation Act?—No. It is really only on odd occasions that they come. I do not suppose they would average more than one a month. Of course at Broken Hill it is a big thing. I think there were sixty-eight cases in the last two months at Broken Hill dealt with by the certifying surgeon in the metropolitan district.

1321. Ought not the combined experiences of the various districts or the various certifying surgeons, to be useful in such a connection;—ought they not to be valuable as indicating the disease risks of the various industries in which men are employed in the State?—They would, if there were sufficient of them, but there are so very few in the metropolitan district.

1322. I mean, the combined experience of all districts?—Yes, if the information were at all complete.

1323. Is there any reason why it should not be returned by the doctors, and completed in tabular form for statistical use?—No reason at all. It could be collected.

1324. In fact, it is not collected, and it is not available at the present moment?—No.

1325. Would it involve the Department in any very serious task if the Board were to invite it to collect the experience of the various certifying surgeons of the various certifying districts?—No, it would not take long.

Outside the metropolitan and Broken Hill districts there would be very little to do.

1326. Will you, then, at the request of the Board, invite the Under Secretary to have that tabulation and compilation made?—Yes.

1327. MR. WILLINGTON: Have any applications ever been refused?—Do you mean refused an examination?

1328. Refused by the Department?—Oh, no. If a man comes and believes he has lead-poisoning, we will send him round to the doctor.

1329. DEPUTY-PRESIDENT: There is no preliminary investigation by the administration staff?—No, we would not presume to interfere in a matter of that kind.

1330. A man is encouraged rather than discouraged from submitting himself to a medical examination?—Yes. In most of the cases that come to us the man has obviously been pretty ill, and I think in pretty well every case they have been men who you could see needed some medical treatment.

1331. Are not returns made under the Act by employers with respect to claims made against them?—Yes. We can get those, but they do not form a very big proportion of the whole.

1332. Those returns are tabulated for statistical use?—Yes.

1333. Can you make those returns available to us over a series of years?—Yes.

1334. In order to show particularly the incidence of Plumbism?—Very well.

1335. You had better, perhaps, not confine yourself to the painting trades, but if you show us the incidence of Plumbism generally it will be better.

1336. MR. MANNING: What would that table be?

1337. DEPUTY-PRESIDENT: It would be a table compiled from the returns made to the Department of Labour and Industry by employers who are liable to provide compensation under the Workers' Compensation Act.

1338. WITNESS: The returns actually indicate the compensation payments that have been made.

1339. DEPUTY-PRESIDENT: Do they indicate only that?—Yes.

1340. Do not they indicate claims that have failed as well?—No. In that case you would only get the amount paid to the successful man.

1341. I suppose the successful claims would represent fairly the condition of any particular industry?—I do not think it would, because I do not think that a lot of these men, particularly in the case of lead-poisoning, know that they have lead-poisoning. They go on working for months and years before they realise it. They are generally pretty far gone before they realise it.

1342. That is the result of your experience?—Yes. They go to their lodge doctors, and their lodge doctors know very little of lead-poisoning, and those things, and they treat them for gastritis and different kinds of internal complaints, and the men go on working and get very bad. Usually by the time they come to us they are pretty far gone.

1343. MR. CONNINGTON: They would only come to your Department when they are unable to work?—Yes. Men with families keep going as long as they can.

1344. MR. CONNINGTON: A witness said yesterday that he kept on his feet as long as he could. The allowance under the Workmen's Compensation Act would not be sufficient help to support a family.

1345. MR. MANNING: I just want to get the real system that is adopted. If an operative workman of any kind wishes to be certified under the Workmen's Compensation Act, the first thing he does is to come to the Depart-

ment?—Well, if he presents himself direct to the certifying surgeon he refers him to us, so it comes to the same thing.

1346. When he is referred to you, I suppose it is not a mere formal matter?—Yes.

1347. Do you not ask him anything at all?—Yes, you just ask him where he was employed, and have a look at him.

1348. And what he is employed at?—Yes. When he applies for a letter to Dr. Nash he will tell you that he has been working on painting.

1349. Supposing he did not tell you that?—We would ask him that, of course.

1350. That would be your duty?—Yes.

1351. And you would take a record of that?—No, we do not take a record of it.

1352. I suppose you make a note of it?—No. We have duplicates of the letters that we send round to Dr. Nash with the men. We keep carbons of the letters.

1353. Can you produce them now?—Some of them.

1354. I shall be glad if you will. Have you got them in the building here?—Yes, I think there are some down below.

1355. Will you produce them?—Yes.

1356. DEPUTY-PRESIDENT: Mr. Perdriau will have to attend again to produce the tables, and he might then also produce the letters.

1357. Mr. MANNING: There is a record of the letter sent to Dr. Nash containing the statement made by the operative when he comes to your bureau?—No. We just give him a formal letter stating that he believes himself to be suffering from lead-poisoning, or something of that sort.

1358. You are aware of the fact that the doctor will not treat one of these men at all unless he gets a reference from your Department?—Doctors are treating them every day, unfortunately.

1359. But Dr. Nash will not treat them for certifying purposes?—No, Dr. Nash will not.

1360. Will the others?—Do you mean in the country districts?

1361. Yes?—I do not know precisely the system at Broken Hill. I think there are very few examinations made outside Sydney and Broken Hill. I do not know what the system at Broken Hill is, whether they apply to the Department first or whether the men go direct to the certifying surgeon there.

1362. Assuming, for instance, that a doctor at Broken Hill comes here to give evidence, and that doctors from other parts of the State come here to give evidence?—The doctor could tell you himself how they come to him.

1363. Supposing the doctor was making a mistake about it, and supposing we wanted more detailed information than the doctor can give, who would be the man who could give the information?—Inspector Henstock inquired into the cases that have been examined before he sent the certifying surgeons' vouchers down. He inquires into the cases, just to see whether the certifying surgeon's claim is correct—to see that he examined the number of men for which he requires payment.

1364. You are a little further on than I am. I am at the stage before the patient goes to the certifying surgeon at all?—I do not know what the preliminary arrangements are up there.

1365. Who would know?—I think the certifying surgeon is the man who can tell you that.

1366. Supposing we want to check the certifying surgeon's account. If he comes from a department or a branch of the department, there must be somebody who can tell you how he came to be sent from the department?—I

do not know that he comes from the department at all. I do not know that the men there do not make a direct application.

1367. Supposing he does come from the department, what department would he come from?—I could not answer that at all.

1368. DEPUTY-PRESIDENT: Let me ask you a question that may clear the matter up. Inspector Henstock occupies an office as a branch office of the Department of Labour and Industry in Broken Hill?—Yes.

1369. And he performs for Broken Hill the functions that are performed for the State generally by the Department of Labour and Industry in Sydney?—Yes.

1370. So that if persons present themselves to the Branch Department of Labour and Industry in Broken Hill, Inspector Henstock would act as you act if they present themselves to the Department of Labour and Industry in Sydney?—Yes, I think generally he would, but what his practice is I could not say.

1371. Who controls and directs him in respect of his work done under the Workmen's Compensation Act?—He comes for advice to me, but in the matter of sending the men to the certifying surgeon I do not think that we ever had any correspondence on that point.

1372. Mr. MANNING: Is it just a haphazard affair? Does the man go up to the certifying surgeon and say, "I am suffering from something or other, will you give me a certificate"? Surely the Department exercises some control?—A man has the right under the Act for an examination by the certifying surgeon. I do not see that the Department has much control over him.

1373. Mr. CONNINGTON: He can go straight to the surgeon without seeing you at all?

1374. Mr. MANNING: Why does the Department bother in the case of Dr. Nash?—I can explain that to you quite simply. Under the Act the payment of his fees has to come out of consolidated revenue, and the vouchers come to me to be certified. If I do not know the men who go to him I will not certify the voucher.

1375. In other words, Dr. Nash will not do what he has undertaken to do under the Act unless he gets a certificate from you beforehand?—He just likes to see that the men come from us, so that there will be no trouble over his voucher. It is simply a matter of administrative convenience.

1376. So that really, so far as Dr. Nash and the Department are concerned, the purpose can be equally served by a certificate stating that this is a case for examination?—It is a matter peculiarly of administrative convenience that the men come to us first.

1377. I say that as far as you and Dr. Nash are concerned, the purpose would be equally well served if you supplied him with a certificate saying that this was a case for examination?—Yes.

1378. But instead of doing that something more is done; there is an indication given of the nature of the man's ailment or what he complains of?—Yes.

1379. How does it come about that that is done?—I told you that it is merely a matter of convenience. It is merely to give the man something to go on.

1380. You have not got any medical officer in your office, have you?—No.

1381. And yet you give that information to the doctor. I am asking you these questions for a definite purpose?—I understand. I think the letters would probably show you what we do. What we say is that he alleges he suffered from lead-poisoning, and ask him to examine. I do not think there is any certificate that the man is a fit subject for examination or anything of that kind, it is merely a letter.

1382. But you indicate the nature of his complaint; that he complains that he is suffering from this, that, or the other?—We merely mention it, just as he mentioned it to us.

1383. Is that where you derive your information from as regards the existence of disease?—How do you mean?

1384. You have spoken about the prevalence of plumbism in its incipient stage; I mean, you offered some remarks to the Board about it this morning. You said a large number of these cases are in incipient form, and that the unfortunate patient very often does not know he is suffering from it until it is fully developed?—Yes. They do not come to us until they are pretty far gone.

1385. What symptoms indicate to you their stages of the development of the disease?—Only the man's general debilitated state.

1386. Do you distinguish between a person who is in a debilitated state through lead-poisoning and a man who is in a debilitated state through pernicious anaemia or dropsy or anything else?—No. You see, Dr. Nash sends the certificate—

1387. Never mind about Dr. Nash, I am asking about the information that you volunteered this morning about the disease being present in an incipient form. I just want to get what your knowledge is on the subject. How you diagnose the various stages of the development of the disease?—I do not think I said anything about the incipient stage. What I said was that the men who came were pretty far gone.

1388. What you said was this, that the lead-poisoning cases did not come in until the men are very far gone, and a lot of lodge doctors know very little about the matter?—Yes.

1389. I want to press you a little on that, because we want the benefit of your information on this; it is considered by us, rightly or wrongly, as being a somewhat difficult matter to handle, and we would like the benefit of your views on this subject. I would like to know, first of all, how you tell the various stages of the development of the disease or symptoms?—I do not tell them at all.

1390. If you say so I will take what you say. Are you in a position to offer any opinion as to the stage which the disease has reached when he comes to you?—No.

1391. So that you really do not know whether or not the disease is in an advanced stage or not when he comes to you?—No, except that a man will come obviously in a debilitated state. He goes to Dr. Nash and he is examined, and Dr. Nash sends the certificate on.

1392. But you are going too far along. I am asking you about the stage of development it is at when they come to see you. That is what you spoke about earlier. Never mind Dr. Nash?—I do not know the medical point of view, of course.

1393. You really do not know anything at all about the stages of development, so I suppose you withdraw that statement—the statement as to the stage of development the disease had reached?—Oh, no.

1394. You are speaking of something which you know nothing about. That is what I want to get at?—No, personally, I do not. I do not know the medical point of view; I would not be able to say that. But I still say the men when they come in are in a pretty bad state.

1395. Bad state of what?—In a pretty bad state of health.

1396. Have they diabetes, consumption, lead-poisoning, or what—do they fall down on the floor, or what do they do?—They look pretty bad, but it may be from quite a number of things. We send them around to Dr. Nash, and he puts all their symptoms on the certificate.

1397. We will deal with Dr. Nash afterwards. I have, unfortunately, to deal with the witnesses as they come along. I want to find out, amongst other things, the qualifications of a witness to speak of these matters. If you say you are not qualified to speak about them, that ends it. If you persist in your statement I would like to know why?—I am not qualified to speak.

1398. Then do you withdraw the statement about the advanced stages of plumbism?—No, I do not think it is necessary to do that.

1399. Then you persist in it?—Yes.

1400. Then what stage of plumbism have these men reached when they go to you?—I say a lot of them are pretty far gone, and the certificates that are furnished show that they are.

1401. Is that all you can say about it?—Yes.

1402. What are the symptoms of “pretty far gone-ness”?—It is just a general debilitated state.

1403. Can they stand up, or do they fall down?—Some of them are pretty weak.

1404. Do they have to lean on the counter, or what?—They are very glad to sit down.

1405. Do you provide chairs for them to sit upon?—Certainly.

1406. I do not think you can give us any further information on the subject from a scientific standpoint?—Certainly not.

1407. You do not make an examination of their mouths or anything of the kind?—No, but I know there is a blue line occasionally seen on the gums.

1408. Have you ever seen it?—Yes.

1409. Where is it?—On the gum margin.

1410. On the lower jaw?—Yes.

1411. What does that indicate, to your mind?—I know it is a symptom of lead-poisoning.

1412. Is it a symptom of anything else?—Yes, I believe it is, of other complaints.

1413. How do you distinguish the presence of the blue line between this and other complaints?—I do not distinguish at all.

1414. You say that the lodge doctors know very little about the subject?—Simply because they keep on treating these unfortunate men without diagnosing that it is lead-poisoning. A man will be treated for quite a long time. Some of the men have told me—

1415. Do you know anything of what they have told you?—Only by hearsay.

1416. So you speak of the qualifications of the lodge doctors by what the patients have told you?—Yes.

1417. Do you know if they ever go back to the lodge doctors after they have seen you and aired their grievances?—We had a case yesterday of a man who unfortunately went back to the same lodge doctor, so perhaps he was not dissatisfied with him?—Some of them unfortunately cannot afford to go anywhere else.

1418. At any rate, you really do not know what system the lodge doctors adopt in their examination, at all?—No.

1419. You recognise there is a pretty wide field of knowledge on the subject?—Yes, I do. There is a lot of specialising required in it.

1420. You know there are many books on the subject?—Yes.

1421. You recognise if a lodge doctor were to diagnose a case, he would require to have some knowledge of the subject?—That is my opinion, from the men themselves—purely hearsay.

1422. DEPUTY-PRESIDENT: Will you be good enough to ask the Department to prepare the tables I have referred to?—Yes, at once.

1423. Will you also, when bringing those tables back, bring or let Mr. Woodham have a copy of the map indicating Dr. Nash's district?—I will.

1424. Mr. CONNINGTON: I think Mr. Perdriau promised to show Mr. Manning a copy of his letter to Dr. Nash.

1425. DEPUTY-PRESIDENT: Yes—all of the letters to Dr. Nash that are on the file?—Very well.

(Witness retired.)

JAMES O'BRIEN, recalled, further examined by Mr. CONNINGTON:—

1426. What is your age?—I am 40 years of age.

1427. You are a competent painter, are you not?—Yes.

1428. Did you serve an apprenticeship to the trade?—I did.

1429. How long have you worked as a professional painter?—I have been at it twenty-one years now, at the brush.

1430. Are you experienced in shipping and house painting?—Yes, in both. I would like to say I have been seven years in touch with the trade, while secretary of the Union. As organiser of the Union I have come into touch continually with the men, on different jobs.

1431. DEPUTY-PRESIDENT: How long have you held your present position?—For seven years.

1432. So you have been actually out of the work in that seven years, but have been continually in touch with the men at the work during that period?—Yes.

1433. Mr. CONNINGTON: As to Section "B" of the Operative Painters and Decorators' Union Report of Committee appointed in 1918, your Union decided to investigate the cases of lead-poisoning amongst the members?—Yes.

1434. The union appointed a committee, and you were a member of that committee?—Yes.

1435. As secretary of the union, you made certain investigations?—That is right.

1436. The report of your inquiries is as shown here on this document marked "B." You have a copy of it, have you not?—Yes.

1437. Mr. CONNINGTON: Perhaps if we read it, so much of it as is regarded as objectionable, or whatever it is thought should not be allowed to go on, may be cut out. The Board can stop the witness at such sections as it is thought should not be allowed to go on the notes.

1438. Mr. MANNING: I do not know if there is any useful purpose to be served by reading the report. Evidence has been given by the witness on the subject, and after reading that evidence we can decide what use can be made of it.

1439. DEPUTY-PRESIDENT: I have made a hasty attempt to read part of the report while Mr. Connington has been asking his questions, and as far as I can see it is a collation of medical opinion.

1440. Mr. CONNINGTON: That is so.

1441. DEPUTY-PRESIDENT: We must get that from medical sources, but I see no objection to the witness saying that the views which are referred to were taken as a guide in preparing part of the report.

1442. Mr. CONNINGTON: Those and other documents investigated, beyond the three books I have referred to.

1443. DEPUTY-PRESIDENT: Then if the witness will indicate that the medical opinion referred to is collated from certain sources nothing will

be excluded. He will merely be saved the trouble of going into the selection of opinions that he has prepared for the use of his union.

1444. MR. CONNINGTON: You make reference here to various medical authorities and other works?—Yes.

1445. What you have reported here are true extracts of those books?—Yes; the whole report is made up of extracts from different authorities.

1446. DEPUTY-PRESIDENT: Unfortunately the report is not what is called “documented.” That is, when it refers to documents the identifying title to the source or origin is not given.

1447. MR. CONNINGTON: That is the weakness of the report in that respect.

1448. DEPUTY-PRESIDENT: Whether a weakness or not, the fact remains the sources from which these opinions are collated are not given in each case.

1449. MR. CONNINGTON: And therefore it cannot be checked very easily.

1450. The whole report is made up of records of findings by various doctors, commissions, and medical authorities?—Yes. There is no personal opinion expressed in it at all.

1451. DEPUTY-PRESIDENT: Where the witness says the committee has done independent work, as perhaps is indicated by the third paragraph on page 2, we may hear him. For instance, if he has made any computation on the basis of English published statistics, that computation may perhaps be regarded as original. I am merely making a suggestion.

1452. MR. CONNINGTON: Apart from perusing those books and preparing this report, did you make any personal inquiries at the hospitals, at the Statistician’s office, or elsewhere in an endeavour to find out the prevalence of lead-poisoning in Australia?—Yes, I did.

1453. Where did you seek information?—I applied to Prince Alfred Hospital, to St. Vincent’s Hospital, and to Sydney Hospital, and the answers I got were to the effect that the cases were not tabulated. Prince Alfred Hospital sent me a copy of their report, I believe for 1917, and I think in that report there was only one case mentioned.

1454. DEPUTY-PRESIDENT: One case of a painter, or plumbism?—Plumbism.

1455. MR. CONNINGTON: What reply did you receive from the Statistician’s office?—They said there were no statistics, and referred me to the Registrar-General.

1456. Did you visit the Registrar-General?—Yes, and they informed me the cases were not classified.

1457. Did you pursue your investigations further?—I also visited the secretaries of the different Friendly Societies—the big Societies, such as the Druids and Oddfellows—and they did not classify them at all. In fact, they have no tabulation at all of the diseases from which their members suffer.

1458-9. Your evidence is mainly that you endeavoured to get what local information was possible, and there was none forthcoming?—That is so. I also wrote to Mr. Knibbs, the Commonwealth Statistician, and he sent me a table showing that for the ten years, 1908 to 1916 inclusive, for the State of New South Wales—

1460. MR. MANNING: You say he sent you a table?—He sent me a letter, and these are the facts in that letter—

1461. Have you got the letter?—No, I have not got it, but I can find it.

1462. MR. CONNINGTON: Did he send you any particulars on the question?—No. He said the cases were not classified at all; they were classified purely as cases of poisoning in building construction, I believe, or it meant

to say, anyway, men who were engaged in building. He could not say whether they were painters, plumbers, or workers at any other trade.

1463. Still, they would either be painters or plumbers, would they not?—Mostly so, I suppose, but of course I do not know. I have here the annual report of the Prince Alfred Hospital, which shows that from January, 1917, to June, 1918, only three cases of lead-poisoning were treated there.

1464. Mr. CONNINGTON: Now we see that the report is a collation of extracts from various works—

1465. DEPUTY-PRESIDENT: You will not be prevented from referring to any opinion at all which is likely to assist the Board in properly handling the figures, or information that is valuable with regard to New South Wales conditions. But the general effect of this report, at first blush—I have not had time to read it, but have glanced at it only as you have been asking questions—indicates that there is occasion for inquiry in New South Wales because of the sinister condition of things existing elsewhere. Now we are holding the inquiry. That does not take us any further. The need for the inquiry has been admitted by the Government, and we, as the agents of Parliament, are holding that inquiry. This matter has apparently influenced Parliament, or we may assume some corresponding matter has influenced Parliament, in making it possible to hold this inquiry, and influenced the Government in directing the inquiry. What we want to get at immediately is the condition of things which exists in New South Wales, and then we need to interpret that condition of things in the light of methods used abroad in the same connection. We are shutting out nothing. We want to take all the evidence that is relevant to the matter. Evidence with regard to the matter is relevant in connection with the inquiry generally, but our ultimate report, our determination, must be based upon facts.

1466. Mr. CONNINGTON: I fully appreciate that, and I can see the difficulty we are all in until we ascertain to what extent lead-poisoning is prevalent in New South Wales. As to whether it is necessary to make any report, and the form of the report, that depends upon the condition of things as the Board finds them. This evidence may be useful, or it may not. Say, for example, investigation showed there were only two cases of lead-poisoning in the whole of New South Wales, one might say "We do not wish to know about other countries. There is so little disease here that the two cases can be dealt with in quite another way."

1467. DEPUTY-PRESIDENT: When we learn that in eighteen months the largest hospital in the metropolis has treated but three cases of lead-poisoning, we are inclined to the opinion that the persons who are responsible for the interpretation of the records of that hospital ought to be brought here and examined to explain why only three cases of lead-poisoning appear in the records of that hospital, for that period. By that means we will get down to the facts, perhaps.

1468. Mr. CONNINGTON: Suppose the hospital has been careless with its records? Suppose, after all, it was just a mere guess on the part of some attendant who did not bother to find out properly, but just said, "Tell him there are three cases." That will not help us. We want to ascertain to what extent lead-poisoning does prevail in the trade.

1469. DEPUTY-PRESIDENT: The first thing, as far as the hospital is concerned, is to find out whether the hospital is in a position to indicate what is the degree of morbidity in that connection.

1470. Mr. CONNINGTON: As the witness points out, he made inquiries and the report was as stated.

1471. Mr. ROUTLEY: I understand that information was in their published report?

1472. WITNESS: They sent me the report.

1473. MR. CONNINGTON: Then Dr. Nash says that in two years he dealt with twenty cases. Then we are told by Mr. Perdriau men only went along when they were suffering very badly from the disease.

1474. DEPUTY-PRESIDENT: I think you ought, before you establish anything of that kind, to call independent evidence. Mr. Perdriau is a gentleman who is engaged in purely administrative work, and he learnt a great deal by hearsay and very little by direct means of information.

1475. MR. CONNINGTON: It is obvious to everyone that the men are in a very bad way.

1476. DEPUTY-PRESIDENT: That is exactly the lines on which we want evidence. Can you convince us that the men are in a bad way? Can you, by producing men or getting statements from them under oath, show that they are in a very bad way, but not bad enough to be taken to the city hospitals.

1477. MR. CONNINGTON: When they go to Mr. Perdriau for the purpose of being examined by Dr. Nash, I contend they are in such a state of health that they find it impossible to carry on their work.

1478. DEPUTY-PRESIDENT: But they only come from all industries, suffering from lead, to the number of twenty in two years. Mr. Perdriau's opportunities of acquiring information are exceedingly meagre.

1479. MR. CONNINGTON: Certainly every man who goes to Mr. Perdriau feels it is time enough for him to knock off work, because he is seeking to obtain the benefits of the Workmen's Compensation Act.

1480. DEPUTY-PRESIDENT: Suppose for a moment the case is as you stated, and applying the suggestion made by Mr. O'Brien taken from one of those books—that of all the cases of lead-poisoning plumbers are responsible for 50 per cent.—and inferring that Mr. Perdriau and the administrative officers have had experience of only ten cases of lead-poisoning in the painting trade within two years, how far are we taken? If those are all bad cases, that is, acute cases of lead-poisoning, and if the trade generally suffers from sub-acute lead-poisoning to a very mischievous extent, we know nothing about it. Mr. Perdriau's experience will not help us, because the persons who reach him are suffering from acute plumbism.

1481. MR. CONNINGTON: And there are apparently only a very few cases.

1482. DEPUTY-PRESIDENT: Now we want a reference to the cases of sub-acute plumbism.

1483. MR. CONNINGTON: Then we come back to the suggestion made this morning, that if a committee is appointed, a committee of doctors, the union will assist to the fullest extent.

1484. DEPUTY-PRESIDENT: Can you, apart from that, give us any indication that these men are suffering to a modified extent from the effects of handling lead?

1485. MR. CONNINGTON: The only evidence we can furnish you with is the evidence I put in on the first day of the inquiry—the statements from 120 men who claim that they are suffering from lead-poisoning, and that their ailment has been certified as such by some doctor.

1486. DEPUTY-PRESIDENT: That is evidence of a state of mind, you see, not of a state of body. These men believe conscientiously that they are suffering from sub-acute lead-poisoning, and some believe they are suffering from acute lead-poisoning. So far, the evidence is good. Do you want us to go further and say that these men, by making the returns, establish the fact that they are physically suffering from the effects of lead? Between the two positions there is a wide gulf fixed.

1487. MR. CONNINGTON: I agree with you, Mr. Deputy-President. The only way I can bring forward the evidence you desire is by bringing each

man here and producing a doctor's certificate that he is suffering from the effects of lead-poisoning; and even with that certificate from a doctor, whether selected by the men or by the union, Mr. Manning will claim to have the doctor called; and to protect the Board it will possibly ask that the man should be examined by a doctor of its appointment. It seems to me the duty of the Board is to hold that both parties must abide by the decision of the doctors whom the men have consulted. The only way in which I can help the Board and which will be regarded as satisfactory by Mr. Manning's clients, and the only way which will make the Board feel there is no doubt about the facts as we represent them, will be by the appointment of an independent committee of doctors. We believe that the 120 men, and no doubt each one of them will swear to the statement made, are suffering from lead-poisoning, each of the 120 will swear that their doctors have told them so. I am sure in my own mind that these are truthful statements made by men who have no desire whatever to mislead anyone; but still, as you say, they do not satisfy the Board that it should bring in some recommendation which may injure other interests.

1488. Mr. MANNING: Your last witness said the doctors knew nothing about it.

1489. Mr. CONNINGTON: He was not my witness. This is not a law court. Parliament may have to do the work of this Board, but it has generally much less information before it than this Board would be working upon. Some learned gentleman may quote what the British Commission of Inquiry did, what some local doctor in one of the Houses may say—

1490. DEPUTY-PRESIDENT: And then Parliament may indicate there is grave need for the ascertainment of the facts in New South Wales.

1491. Mr. CONNINGTON: Yes, and that somebody such as this Board should make the investigation; and in investigating the matter the Board will show its common sense with regard to any information which comes to it. If Mr. Perdriau had made that statement this morning, or not, does not make a bit of difference. The facts are obvious. When a man goes to Dr. Nash he is not fit to work. He goes along to get the protection of the Act and the allowance provided therein for persons unable to follow their usual avocation.

1492. DEPUTY-PRESIDENT: Then the point to be investigated is, if the incapacity rate be so much, what is the attack rate? The unknown quantity is the number of persons who are attacked, out of the community handling paints, with the disease of plumbism? Upon that point we want evidence. There is one way of getting evidence, and that is to take the whole of the community working in paints and subject them to examination, or to take a properly selected proportion and subject that proportion to technical, medical, clinical examination. If we are unable to do that—and I cannot say at the moment we are able to subject any proportion at all of the painting community to technical medical examination—can you assist us by giving us evidence as to their general condition of health? I know I am asking you to make evidence out of the void, but the proposition I am putting to you is not more formidable than the proposition which the Minister has put to us. I am driving you in order that we may get assistance from you.

1493. Mr. CONNINGTON: I see the difficulty; I will try and put myself in the position of the Board. You have to ascertain as men of the world whether or not there is such a disease as lead-poisoning? Is it prevalent in New South Wales? To what extent, approximately, has it affected members of the community working amongst lead?

1494. DEPUTY-PRESIDENT: And it does not help us to know it is probably extremely prevalent in New South Wales, because it is extremely prevalent all over the rest of the world.

1495. MR. CONNINGTON: The figures indicate it runs from 10 per cent. to 15 per cent. That is the result of investigations made up to date, and the general gist of the quotations we have here is that men working in the trade as painters are liable to suffer, and as a matter of fact do suffer, from lead-poisoning more than men engaged in any other trade. Even in comparison with those men who work in the direct manufactures where lead is made, the house painters suffer more greatly. As the Board points out, that does not mean technically that the same thing is happening here in Australia.

1496. DEPUTY-PRESIDENT: It only shows the need for inquiry.

1497. MR. CONNINGTON: But we know the Legislature has considered the matter in its way and decided to make lead-poisoning an "accident" under the Workmen's Compensation Act. Anyway, we must assume that the Legislature in doing that knew something of what it was doing, and that this disease was reasonably prevalent, before they would so distinguish it from other afflictions such as influenza, &c., and place it under the Act. I think the Legislature has taken that step itself.

1498. MR. WILLINGTON: In what relation do you make the computation of 10 per cent. to 15 per cent.? Is that from 10 per cent. to 15 per cent. of the painters who die from the disease?

1499. MR. CONNINGTON: No, it is from 10 per cent. to 15 per cent. of the whole of the workers engaged in the industry, which is, of course, greater than the same percentage of the painters alone. As the Deputy-President points out, all these things may go to show that elsewhere they have decided certain things on the facts existing in the various countries, but unless something similar is shown to exist here the Board is in a difficult position. However, the information that is thus gleaned means that our time is not wasted. We have given a lot of information which will prove useful and interesting, but it does not help the Board to solve the questions submitted to it. That is, is the state of affairs ruling here such as necessitates some drastic recommendation as to the use of white-lead? If the Board can get that investigation of the evidence, it will be of far more value. If the Board has to do its work without the investigation of the evidence, the Board knows that is all it is possible for me to put forward. The witness will tell you the state of the trade and his beliefs as to the feeling of the men generally, what has been his experience as secretary of the union, and his observation of the men going in and out continuously. He can say what he thinks about the time lost by the men as the result of their calling. He can tell the Board of those people who leave the trade every year because they are afraid of the dangers attached to it. He can give us all that general information. Then, if the Board cannot obtain anything better than that, it will have to act on that sort of information, and we will assist it to our utmost in that direction.

1500. DEPUTY-PRESIDENT: The Board can get some information from statistical sources. Mr. O'Brien failed to get the information, but perhaps the Board can obtain it. I can only go so far at the present moment as to say it ought to be able to get from statistical sources some direct evidence on the question submitted.

1501. MR. CONNINGTON: My trouble is that until recently lead-poisoning has not been recognised by the law. The Workmen's Compensation Act brought it into prominence and probably there is a good deal more notice taken of the disease than would have been taken otherwise. I suppose things were called lead-poisoning which were not that disease at all, in the

past; and at times no doubt something which was lead-poisoning was treated as another complaint altogether.

1502. DEPUTY-PRESIDENT: Of course, there are no morbidity statistics at all in the State or Commonwealth. One can only throw the light of statistics upon any particular question by handling judiciously the mortality statistics—the statistics of deaths.

1503. Mr. CONNINGTON: And by drawing inferences therefrom. I think it is well worth the while of the Government to find all these matters out. Would it be costly to have a committee of two or three doctors appointed? It would be all the better if the parties could agree on the constitution of the committee, but failing that the Board might say, "We will have one, two, or three doctors upon whom we can thoroughly rely, and they will carry out any duties we impose upon them." If the Board is satisfied that could be done I think the money would be well spent. After all, it ought not to be very costly. With the assistance of the union the Board will be able to carry on the investigation much more cheaply than will be the case if it had to do the work without the assistance of the union.

1504. DEPUTY-PRESIDENT: Of course, the only effective method of ascertaining the facts is a method which will produce results, definite results, and it seems to me it is unimportant whether or not the use of that method costs money. It is a good old maxim, "One cannot have omelettes without breaking eggs," and equally one cannot have information with regard to the health of the community without spending money. If it is desired to protect the health of the community, if it is justifiable by the existing facts, one must be prepared to spend money—or postpone the movement—to protect the community.

1505. Mr. CONNINGTON: On the other hand, no person in the community will deny that some of our people do suffer from lead-poisoning; no one will deny that more are likely to suffer. What is the other side of the picture? If there is any doubt on the question of the existence of the danger, we say we should take the bull by the horns and bring in legislation on the principle that prevention is better than cure.

1506. DEPUTY-PRESIDENT: Parliament can do that. Can the Board recommend that Parliament should do it?

1507. Mr. CONNINGTON: That is a matter for the Board to determine.

1508. DEPUTY-PRESIDENT: It will be a counsel of desperation to say, "We cannot find out anything about existing circumstances, but we suggest, because the whole position is obscure, that Parliament should legislate for the prohibition of lead." That would be, as I suggested, a desperate position.

1509. Mr. CONNINGTON: I am not asking the Board to do that. If the Board were satisfied, as the union officials are, that a lot of men are suffering from lead in the initial stage, then I contend the Board would have no hesitation in making a recommendation. I am trying in every way I can to give the Board the idea that there is a considerable amount of lead-poisoning in existence, and that the painters believe it to be so. They will be very pleased to know that there is no danger attached at all to their work; I am sure that would bring brightness into many a home and into many a man's life. The proof of the fact that they wish to discover the truth in connection with the matter, is that they are willing to assist in every way to have the question investigated. I think an attempt ought to be made to have it investigated in a way which will enable the Board to feel, as I feel now, that there is enough of the disease in the community to warrant something being done—if not prohibition, at least considerable restriction in the use of white-lead in paints. The British Commission recommended that it be reduced to 5 per cent. There is that to go on. There is also the prohibition

in France, whether it is enforced or not. There are restrictive regulations in Germany, in Sweden, and in other countries. All these things indicate that something ought to be done, as a first measure, in New South Wales; as I say, if not prohibition, at least something to restrict the use of white-lead until more is known as to whether or not it is sufficiently harmful to warrant its prohibition altogether.

1510. DEPUTY-PRESIDENT: Is not the position this: The utmost effect of what you can learn from abroad is to throw those who, in New South Wales are concerned in the use of white-lead, upon the defensive. That is the utmost you can claim from what you can learn from conditions abroad.

1511. Mr. CONNINGTON: We say if there is any doubt about the matter we are prepared to remove that doubt, to clear the thing up that is now vague, by allowing you to have the use of our union machinery for the purpose of proving that what is existing elsewhere, or is believed to exist, does not exist here.

1512. DEPUTY-PRESIDENT: I think that is a very reasonable and commendable attitude.

1513. Mr. CONNINGTON: That is the stand we are taking, and if the Government will agree to a thorough investigation, we will help in every possible way. If it will not agree, we will call painters of twenty or thirty years' standing and they will, like honest citizens, tell you just what they believe.

1514. DEPUTY-PRESIDENT: Your witness is in this position: He feels there is a good deal of technicality about this inquiry; he feels that because his associations in life convince him, day by day, that there is in existence a very mischievous condition of affairs.

1515. Mr. CONNINGTON: That is so.

1516. DEPUTY-PRESIDENT: He learns that rather by subconscious than by conscious processes. He is absolutely convinced there is need for corrective legislation. But somehow or other you must convince us that what justifies the opinion in his mind, can be established as a fact. Now, that is the difficulty. Our minds are not influenced by these subconscious reasons or causes, and we have got to deliberately reason ourselves to the conclusion that legislation is necessary, if we are to so report. Can he help us by bringing above the threshold of consciousness these matters which influence his mind?

1517. Mr. CONNINGTON: I shall question Mr. O'Brien upon those lines. As to this report, it may or may not be of assistance to the Board, but there is a good deal of research work in it, and I feel sure the Board will find it useful. I think Mr. Manning will appreciate that there are a good many things in the report which he will be glad to learn.

1518. As the result of this report, I understand your committee carried a resolution?—Yes.

1519. Mr. MANNING: I do not know if we are concerned with resolutions.

1520. DEPUTY-PRESIDENT: I do not think it will prejudice or overload the case in any way. I think we ought to have what is the deliberate opinion of the union if it can be ascertained.

1521. Mr. CONNINGTON: I will concede what Mr. Manning says is quite regular from the standpoint of our proving a case. We practically tell you we can only prove a case in one way, by bringing men along to say that doctors have told them they are suffering from lead-poisoning. Mr. Manning says that the witness is only expressing an opinion. Then another doctor will be brought along and Mr. Manning will say that until another doctor has examined the witness the Board cannot act upon the evidence. Then the two doctors will confer and probably disagree, and the Board will bring in a third doctor—and he will possibly disagree with both of the others. This is a question of whether legislation shall or shall not be passed

to restrict the use of white-lead because it is injurious to the health of the community——

1522. DEPUTY-PRESIDENT: We have not ruled in any way that you may not call the doctors referred to in your schedule of cases. But it strikes us as being a very expensive way of doing things, and, of course, we have gathered from you that the union cannot meet the expense of calling the doctors. If the Board is forced back to the position of calling the persons who are affected with lead, or probably affected with lead, together with their medical officers, it may have to go to the expense of summoning those doctors. It would be a ridiculous position if the Board were forced back to that.

1523. Mr. CONNINGTON: With us it is a question of finance. If we had the money we would certainly have no objection to bringing along the men and the doctors and allowing Mr. Manning or anyone else——

1524. DEPUTY-PRESIDENT: If you did that your method of proving the case is the other method you suggested this morning should be adopted.

1525. Mr. CONNINGTON: Apart from the fact that I appear here on behalf of the painters I would be more than satisfied to know, as a citizen, that two or three medical men who could be trusted were appointed in the interests of the community to inquire into this question. I would know then that any action taken was justified, and whatever other views we put forward, if human health was saved, I would feel good work had been done. But we do not want to cause loss to anyone unless it is essential in the interests of the men themselves and of the public. I think the method which has been suggested is the proper method to adopt. The evidence of Mr. O'Brien will be generally to say there is something in existence which at least requires further investigation.

1526. DEPUTY-PRESIDENT: Let us get from Mr. O'Brien what he can give us, but do not be disturbed if either the Board of its own motion or at the suggestion of Mr. Manning, has to restrict Mr. O'Brien's expressions of opinion. Necessarily the evidence you are going to give the Board is of a kind which must be handled very carefully. The Board has a duty to perform, and Mr. Manning has his duty to perform, as you have; and between the three of us—the Board, yourself, and Mr. Manning—I have no doubt we can get quite properly from the witness all that he is able to give us in a responsible way, with regard to his knowledge of the conditions of the industry. Where he develops theories based upon medical presumptions, necessarily he must be checked. If he will give us what can be taken as the facts of the case, as known to himself, he is likely to have complete freedom.

1527. Mr. MANNING: I have been affected to some considerable extent by consideration of this fact, that the essential part of this inquiry really is highly scientific, and the only relevancy of the facts which can be spoken to by gentlemen who are not scientific men is to supply the basis of the opinions of people who are scientific. I do not suppose anybody thinks it is a subject in which to apply highly scientific principles. That has been the view I took. I do not want to be bothered about technical objections, or anything of that kind. We are equally willing and desirous of doing all we can, and I will consult with Mr. Connington afterwards, in view of the suggestion made this morning, and see what can be done in that way. Mr. Connington, I may say, has thrown out a suggestion which is well worthy of very careful consideration; and as far as I can see the only thing which requires further thought about it is the extent to which it can be applied. What is the proper percentage to take, for instance, for the purpose of striking an average? You do not want to take a person affected by a bad lung, or to take six men and find they possibly have lead-poisoning.

1528. DEPUTY-PRESIDENT: If you can agree to make joint representations in favour of the appointment of a technical committee we should then discuss with that committee the method it would adopt. The method should be satisfactory, not only to the committee, but to the Board and those who appear before it.

1529. Mr. MANNING: I am not prepared to say anything further at this moment, because I have a number of scientific men with whom I discuss these things from time to time, and I would like to hear what they say on the subject.

1530. DEPUTY-PRESIDENT: The immediate difficulty is that with which Mr. O'Brien is faced. He desires to give evidence. That is, evidence of impression, and it must be influenced to some extent by presumption with regard to scientific matters. I agree that the evidence is only likely to be valuable when it cannot be challenged with respect to those presumptions. It is very difficult for a man in the position of Mr. O'Brien to make himself well informed—

1531. Mr. MANNING: I should imagine from this report he has done very valuable work, that he has done quite a lot of work in the matter. I suggest, with great respect to everyone concerned, that the proper use to make of it is to get out some facts which can be established as facts, not as opinions. When you have those facts you must apply whatever scientific knowledge is available. If you can deal with the abstract, that is the way to proceed to take the case, I should imagine.

1532. DEPUTY-PRESIDENT: We are all agreed to proceed on the facts if we can only identify them as facts, and we must help him to classify facts in his information.

1533. Mr. MANNING: Scientific opinion in the abstract is no good. It is only useful when applied to concrete facts. That is why I was suggesting some care in the direction in which the inquiry proceeds at this stage. As I say, if we can be of any assistance, or if any one can suggest some manner in which we can help, we will be only too glad to do so.

1534. Mr. CONNINGTON: My impression is fixed, that there is danger of lead-poisoning; that it exists every where, and that it also exists in Australia. Many of these journals which will be referred to give references to a manager or director of big firms-favouring the use of non-poisonous classes of paint. Many advertisements go to indicate the value of non-poisonous paint. I think there is no dispute as to the possibility of danger to the people working in industries where lead is used. The only question is, on the one hand, the employers have vested interests at stake, and have spent a good deal of money in establishing an industry here, and naturally they will be very loth to see legislation brought in to prevent them from carrying on that industry. On the other hand, they may know, better than the operatives themselves, ways and means by which the danger can be materially lessened. Where it is unavoidable, something by way of compensation to sufferers might be agreed upon. I think if they would approach the question in that spirit, as we are endeavouring to do—because, as I have said, we do not wish to do anything to injure other people—it will be better for all concerned. Human life makes it necessary for us to curtail their liberty—

1535. DEPUTY-PRESIDENT: Mr. Manning has indicated that he has gone to some pains to assist the Board in the inquiry, that he has prepared evidence for the Board's information—

1536. Mr. MANNING: We are preparing it. This is the attitude with which I approach the matter. After reading the notes of the first day's proceedings I assumed Mr. Connington was then going to put a case before this Board for prohibition. That was his statement, and Mr. Connington repeated the statement to-day.

1537. Mr. CONNINGTON: If it is justified!

1538. Mr. MANNING: I understand Mr. Connington to say, to-day, that he would put before the Board all he knew himself on the subject, and that he would advocate the total prohibition of the use of lead.

1539. Mr. CONNINGTON: I did not say that.

1540. Mr. MANNING: He had prohibition in his mind, anyway. The first matter we are concerning ourselves with is to answer the suggestion, and when we ascertain, first of all, what it is then our first concern is to deal with that matter. After we have dealt with it, and have endeavoured to show it would not be considered for a moment on scientific principles, then we would proceed to deal with the use of white-lead, and will possibly make useful suggestions to the Board. However, that is a matter for a later stage of the proceedings. First we want to resist the threatened danger, and having done that we may be able to suggest, for instance, the use of some safeguards which might receive some consideration from the Board, and possibly may be adopted by the Board. We are concerned at the present stage with Mr. Connington's statement that he was going to put the case for prohibition. When we see what it is, we will deal with it. Meanwhile we are anticipating it to some extent, and preparing as we go along. When we have dealt with that, we will put other facts before the Board, which I have no doubt will be of great assistance.

1541. Mr. CONNINGTON: We are not in the position of litigants. We have put part of our case, and it is not regarded satisfactorily by Mr. Manning. Now let us have a section of his case, and we would really be in a better position than we are now in.

1542. DEPUTY-PRESIDENT: I agree that you are not in the position of litigants. You have been good enough to help the Board by commencing, and have given the Board an indication of the views adopted in union circles with regard to the reality of the risk to which painters are subjected. When you have done that you may say you have not given the whole of the information that can be collated by some authority other than the union. But you do not then leave the inquiry. We will be glad to have your assistance right through. When you finish, Mr. Manning will commence to inform the Board as he thinks it ought to be informed, upon technical, technological, and general scientific aspects of the question, as well as upon the commercial aspects. You will, if here, have an opportunity of cross-examining his witnesses. You will be able to confront gentlemen in charge of enterprises with these reports of statements that they have made from time to time upon the subject of the risks involved, and you will get from that all the satisfaction that your side should need, I imagine. The Board will, no doubt, get a good deal of help from the cross-examination by you of Mr. Manning's witnesses, as well as a good deal of help from the examination in chief. Let us proceed now with the evidence Mr. O'Brien can give, only I want to warn you, Mr. Connington, that no one is ill-disposed towards you, who desires to keep or force witnesses down to facts, as far as a witness can be held to facts. There are many things in the nature of facts in the possession of a witness which are perhaps not regarded by him as facts when the distinction is drawn between facts and opinions. We want to know what is contained in Mr. O'Brien's mind at this particular stage.

1543. Mr. CONNINGTON: I will be very glad to give the Board all the assistance I can. Every one knows the difficulty the union is in to prove its case, or to help the Board at all; every one appreciates the difficulty in which we are placed, and we do not want to be continually reminded that this is not the evidence which would be taken in a court of law, or upon which the Board can act.

1544. DEPUTY-PRESIDENT: Do not be sensitive if you are checked from time to time, because that will make you less able to help yourself. We all want to have Mr. O'Brien's opinion about the matter.

1545. Mr. CONNINGTON: What he thinks about it, and then you can find out what that is based upon.

1546. DEPUTY-PRESIDENT: Provided the theory is not beaten too thin.

1547. Mr. CONNINGTON: (*To witness.*)—You have had twenty-one years of experience as a painter, and have been seven years secretary of the union?—Yes.

1548. As secretary of the union, do you come in contact with the members?—Yes, a good number of them.

1549. With regard to the question of the use of white-lead in paints, can you give the Board any idea as to the views of the men generally in that respect?—Well, I have discussed it very freely because I have always had an interest in the question of lead *versus* non-poisonous paints, and I have taken the opportunity on numerous occasions of discussing it with the men. I am perfectly safe in saying the tenor of their opinion is that they believe lead to be poisonous, and prefer to work with non-poisonous paints. That is the general tenor of the expression of union members' opinions upon the subject—and I have discussed it very often indeed with them. I have taken a deep interest in the question, and have therefore made a point of getting that information for my own use and that of the union.

1550. And in 1918 this committee was appointed?—Yes, and the report was drawn up in 1918.

1551. The committee was appointed for the purpose of getting evidence as to the effects of white-lead poisoning?—Yes, through an agitation which arose on the question.

1552. With regard to lost time, is the industry generally, apart from sickness, one in which men are kept regularly employed?—No, the work is fairly intermittent. There are times when a boom is on, but we very seldom have any difficulty in finding men.

1553. In your opinion is the trade a healthy one?—My opinion is that it is not.

1554. Is that opinion based upon observations?—Yes.

1555. DEPUTY-PRESIDENT: What have you observed?—Taking the men I have worked with, I have generally found the majority do suffer from sicknesses which usually take them off for two or three days at a time. It may not be a serious or severe sickness, but it generally lasts for two days—sometimes only for a day. But I found the sickness amongst men whom I have worked with has been very prevalent.

1556. Would you say all men in the painting trade are subject to the risk of losing two or three days at a time, through such sicknesses?—No, I would not go that length.

1557. Then your observation has been that a certain proportion of the tradesmen are subjected to these periods of incapacitation?—Yes. I have also based that opinion upon this observation: I have found that the men who follow painting for any lengthy period have been men who I should assume to be not physically strong. They do not seem to have the same physique as the tradesmen in the building trade. I find painters, taking them generally, are of a weaker standard of physical ability than other tradesmen.

1558. To what do you attribute the difference?—I do not for a moment say that it is lead, because, although I do not know, I have the opinion that the fact of using paints has something to do with it.

1559. Would it be attributable to the fact that the weaker man takes to the occupation of painting?—There may be something in that, because it is a lighter vocation. There may be something in that, but I am not in a position to say.

1560. The effect of your observation has been, then, that a certain proportion of the tradesmen in this industry are subject to the risk of losing periods of two or three days' work from time to time?—That is so.

1561. How frequently would these periods of two or three days' work be lost, say in one year?—

1562. MR. MANNING: Is that in the case of each man?

1563. DEPUTY-PRESIDENT: Yes.

1564. MR. MANNING: I think the witness said there was only a percentage affected at all in that way.

1565. DEPUTY-PRESIDENT: A certain proportion of the men in the trade are shown to be weak—that is, in respect of their health. They suffer from collapses in health from time to time. I asked my questions to find out if Mr. O'Brien's observations had gone so far as to indicate that these collapses in health were frequent.

1566. WITNESS: I would not like to say so. I find—

1567. DEPUTY-PRESIDENT: That they are not recurrent in the case of the single individual?—There are some cases. I have in mind—

1568. But the individual employees who are subject to lapses in health are not subject to intermittent and recurrent lapses?—I would not like to say generally, but in some cases I know of, yes.

1569. MR. CONNINGTON: Anyway, it is your view, as general secretary, that the trade of painting is regarded as being an unhealthy occupation?—Yes.

1570. Is that your own opinion of the trade?—Yes, it is my own opinion.

1571. You had twenty-one years' experience. During that period did you lose any time owing to lead-poisoning, or because of the effects of it?—No, not to my knowledge have I suffered any ill effects from it. I had a slight attack of colic on two occasions, but I did not trace them—

1572. However, you say you were never sick enough to knock off work?—That is so.

1573. DEPUTY-PRESIDENT: When you speak of colic, what exactly do you mean—stomach ache?—Yes. I know that is due to volatile thinners they use to mix paint with. That is generally when you do flattening work, so I take it from that the emanations from the paint are the cause of it.

1574. MR. CONNINGTON: Do you remember the returns put in on the first day?—Yes.

1575. Are there any supposed to be suffering from lead-poisoning, outside the exhibit?—Yes. I have just been thinking over the matter, and there was one man I remember who was unable to attend through being confined to his bed.

1576. MR. MANNING: You only know he is ill?—I know he has a certificate from Dr. Nash, and also that it has been certified by doctors in the Sydney Hospital that his illness is lead-poisoning.

1577. MR. CONNINGTON: Do you know of any other case?—I know of two other cases of men who have told me it has been certified to by Dr. Nash.

1578. MR. CONNINGTON: I think the case is pretty strong, that people are losing their lives as a result of this disease, and it is for the employers to show—

1579. WITNESS: I have a return from a man which has not been put in. I found it in my correspondence—a certificate from Dr. Nash.

1580. Mr. CONNINGTON: We will hear Dr. Nash after lunch, and he will give a report of all the cases treated by him. If the trade is regarded as unhealthy by the men working in it, can you give any reason why they continue to work in it?—Well, it is termed a "craft." They serve a certain time at their trade. I do not think, outside of being secretary of the union, I would care myself to leave it, not to take on any hard work. I do not think I would be able to do it. After doing a certain time at painting you are not capable of taking up hard labouring work. The result is, it would be difficult to find jobs we are suited for.

1581. That apparently strong-looking man, Mr. Lowe, got a certificate from a doctor to try other work for a time. He is apparently a strong man, judging by his build. He tried wharf labouring and found it was too heavy for him. You say that you personally would not like to take on other employment?—No, because I like painting; I like the craft I have followed. I take it the others are of the same mind.

1582. And you take the risk of becoming affected by this lead?—Yes. There is a certain amount of pleasure in following this trade.

1583. Notwithstanding the fact you may be affected by lead-poisoning and may ultimately lose your life—you are still prepared to carry on with it?—You do not take that too much into consideration when you are interested in your work.

1584. Are there any people who take the contrary view? Are there any who leave the trade?—Yes, quite a number. In fact, when I went to the office last night, I looked through my correspondence of the last six months to find how many had resigned from the union and got suspension of dues in order to leave the trade. There were fourteen in the last six months. We have a rule in the union which allows men to get suspension of contributions on the condition that they remain away from the trade for over three months. Their contributions are suspended and they go to another trade; but when they like they can come back and carry on their membership with our union. I found there were fourteen who had sent in their resignations and had mentioned in their letters—

1585. Mr. CONNINGTON: But fourteen is not a great number?—That is only in the last six months. The first is from a man, F. Dodds, who says "I hereby apply for a suspension of contributions, as I intend leaving the trade for a considerable period." Another one states the trade he is going to—he wanted a clearance to the boot trade. I think he is about the only man who did mention the trade he was going to work at. In these cases I am generally requested to get information, and I usually write to the member, who calls and sees me. Then I give a clearance to whatever union it may be—he tells me which it is.

1586. DEPUTY-PRESIDENT: Can you tell us how many men have left the union in the last five years?—I can get the information, I believe. Some simply say "I desire to tender my resignation," because they have to give three months' notice.

1587. Can you give us the resignations from the union?—There are two sections of the painting trade. I can give you the statistics of my own section over seven years, but I can only go back to about 1919 over the other section.

1588. Would it be possible for you to give us the ages of the men resigning?—Yes, I can get their ages, but it would be a big job. When they joined the union first they send an application form setting out their age and the time they have been at the trade. We have them classified in alphabetical form—

1589. Would it be possible to look back to those applications for admission to the union, in each case, or would that be too difficult?—Yes, I can do that.

1590. And in that way you can make a computation. Could you not put it in this way: So-and-so resigned on such-and-such a date; admitted on such-and-such a date; age, so-and-so?—Yes, I can do that.

1591. That will give us the whole of the information?—I have it, but it has never been tabulated, as it was not necessary.

1592. If they resign at the rate of twenty-eight a year—I am only guessing—you will not be involved in a very big job?—No. I am safe in saying I have come across six or eight more who said “I desire to resign,” and have forwarded resignations. We have to adopt that method under the Act. I do not know if they have gone to another trade or not. I know there are one or two who have resigned in order to become employers.

1593. It will not be difficult to distinguish in the list those who have become employers? I take it they will be known to Mr. Manning’s clients?—They would not know those men unless they had joined the Master Painters’ Association.

1594. DEPUTY-PRESIDENT: There is a strong probability they would be known to the persons who supply the paints.

1595. Mr. CONNINGTON: Only a very small percentage have become employers.

1596. WITNESS: In making out the tabulated list, I could not give reasons for resigning.

1597. DEPUTY-PRESIDENT: Let us have it for what it is worth. We will not imagine any cause at all, but just take it as a record of the resignations.

1598. Mr. WILLINGTON: Have you many names in your books of men who are not active members?—Oh, no. If they get a suspension of contributions, as far as we are concerned they are no longer members of the union. We merely put a black pencil mark through the names instead of scoring them out in ink. When the men return to the trade we take out the pencil mark. We have already a record of the date they leave.

1599. I understood you to say previously you had 1,500 members, but were not able to give the addresses of all of them?—That is because they have no addresses; but they are still members of the union.

1600. You have them on the books?—Yes.

1601. Mr. CONNINGTON: Where would those members be?—They might go away for a trip into the country and forget their responsibilities, but when they want a job down here again they come back to the union.

1602. Mr. WILLINGTON: You cannot say whether or not they are still living?—We have lost trace of them. They may be working as painters in the country, or in other States.

1603. Did that committee of 1918 carry a resolution?—Yes. It is as follows:—

“The committee are satisfied, after exhaustive inquiries, that lead-poisoning as affecting men employed in the painting industry is much more prevalent than is generally recognised. It is the opinion of the committee that steps should be taken immediately to bring this important question before the Government.”

That was passed in 1918.

1604. DEPUTY-PRESIDENT: The very moderation of the conclusion commends the report.

1605. Mr. CONNINGTON: Some question arose as to the amount of ladder-work done by members of the union, or painters generally. Are you competent to express any opinion on that question?—It was complained that

they had pains in the ankles and the feet, and I think, Mr. Deputy-President, you remarked it might be due to a long period of standing on a ladder by the operative.

(At this stage the Board adjourned until 2 p.m.)

Upon resuming:

1606. DEPUTY-PRESIDENT: Apparently the District Court area runs from Hornsby, through Chatswood to about the location of Ashfield; down from Ashfield to Tempe, and from Tempe to Hurstville; from a line west of Hurstville down again to National Park. Therefore I should imagine the proportion of working men who live outside that area must be very much greater than the proportion who live inside it. While we are waiting for Dr. Nash, I think Mr. Perdriau might go back into the witness-box.

RALPH JOSEPH PERDRIAU recalled, further examined by Board:—

1607. DEPUTY-PRESIDENT: Have you brought the letters addressed by the Department to Dr. Nash?—Yes.

1608. The complete sheaf?—No, only about half a dozen, because the letters are not really preserved; they are just put into a pigeon-hole, and that is half a dozen which happened to be there.

1609. Mr. MANNING: Each one really contains the sting that I thought it would. I asked you some questions this morning under rather a misapprehension. I thought you were examining the men—that you made a sort of formal examination first of all?—Oh, no.

1610. DEPUTY-PRESIDENT: Is it desired that these letters be made exhibits in the case?

1611. Mr. CONNINGTON: What does the first one say?—It is dated the 11th March, 1921, and is as follows:—

“I have to inform you that the secretary of the Operative Painters and Decorators’ Union of Australia has notified that W. Curran, painter, is an inmate of No. 8 Ward, Sydney Hospital, suffering from lead-poisoning, and I would be glad if you could make it convenient to examine him with a view to the issuing of a certificate of disablement in accordance with the Workmen’s Compensation Act, 1916.”

1612. Are they all cases which have been referred to you by the secretary of the union?—No. Some of them are from the printers.

1613. Are all the painters’ cases from the secretary of that union;—can you tell us that later?—No; I can only give you my impression. I think some of them are independent. I was thinking of one from Mort’s Dock and another from the Port Jackson Company—I do not think they came from the union at all. The letter I read was a case from your union.

1614. DEPUTY-PRESIDENT: Have you anything further to add?—I may add that perhaps I might ring up Dr. Nash on the ‘phone about a matter. I remember one case in which I telephoned to give him some particulars. That was on a letter from the Painters’ Union. I noted on the paper that I could not raise Dr. Nash on the telephone on one day, and that I did get on to him later. That was in the case of Joseph Parkes.

1615. Has this map any identifying mark, number, or title?—Yes: “New South Wales, showing boundaries of Police, Licensing, and District Court districts, places of Petty Sessions, Licensing and District Courts.”

1616. That is an official map for the State of New South Wales?—Yes.

1617. Will you indicate to the Board the metes and bounds of the Metropolitan District Court area?—Apparently the northern boundary starts at Broken Bay and runs eastward along the course of the Hawkesbury River

approximately to the railway line; then the line continues south pretty well parallel to the main line to Wahroonga—to a little south of Wahroonga; then from Wahroonga it continues in a south-easterly direction to a place in the neighbourhood of Ashfield; then it continues in a general southerly direction to Tempe; then it takes in a little stretch of country to the west of the line, including Hurstville; and then south, embracing National Park, to the Pacific Ocean at Wattamolla. The other boundary would be the Pacific Ocean.

1618. DEPUTY-PRESIDENT: Having the information on the notes, we need not make the map an exhibit. That is the district in which Dr. Nash operates, as certifying surgeon?—Yes.

(Witness retired.)

JOHN BRADY NASH recalled, examined by Board:—

1619. DEPUTY-PRESIDENT: Will you now resume your information?—I have gone through my books and I find there have been twenty cases since 1st April, 1919, dealing with plumbism, lead-poisoning. That is from the 1st April, 1919, to 21st March, 1921.

1620. We find from reference to the *Government Gazette* that “The Honorable John Brady Nash, M.D., M.L.C., has been appointed a certifying surgeon in terms of the Act; and to discharge the duties of such position within the Metropolitan District as defined by proclamation under the District Courts Act, 1912.” That was dated 24th January, 1918. The person referred to in that notice is yourself?—Yes.

1621. There was no appointment prior to yours;—your experience represents the whole administrative experience under the Workmen’s Compensation Act of 1916 in the Metropolitan District Court area?—That is, all the cases sent to me.

1622. It is the experience of the certifying surgeon?—Yes; of the cases sent to me.

1623. Can you give us details of those twenty cases?—In what particulars do you require the details—as to ages? They are all abstracted here, and I can give you the abstract from my books. It contains the condition, ages, names, occupation, whether certificates were given or not, and whether there were consultations. I can supply any other information, but I did not know exactly what information was required.

1624. If I examine you in chief, as it were, then the other gentlemen can examine you in order to elicit information I may not consider to be important?—The folio number of my book is in the first column, and then comes the date, the age, and so on.

1625. The first name is Charles Lowe—we have had him here, so there may be no objection to the disclosure of his name?—There is nothing at all in that, because all information has been sent in on the certificate.

1626. Charles Lowe, decorator and painter: The comment is, “Gave certificate lead-poisoning on 1st April, 1919.” He was 35 years of age. The second case is that of Charles E. Crump, a decorator and painter, and he was given a certificate——?—Perhaps I might read them for you. The second case was 22nd April, 1919, a man 57 years of age, Charles E. Crump. He was a decorator and painter. I gave him a certificate for lead-poisoning, and on 22nd July, 1919, he came again, and I gave him a certificate to say he might resume work.

1627. What did you mean by certifying that he might resume work—that the lead had passed from his system?—He had recovered sufficiently to do work.

1628. It did not mean that he was free from it?—No. Lead-poisoning is such a chronic thing that I tell every one who comes to see me that once a man is affected he should not go back to that work at all. You can understand that lead is a very impalpable material, and in order to produce poisoning it has to be taken into the blood and moved about from the stomach, and deposited in various parts of the body—deposited in the nervous system, the muscular system, and all of the systems—deposited in the way you can see it around the gums. The blue you see around the gums is blue metallic lead. It is the metallic lead that is the poison, and it affects all the systems of the body, but particularly the nervous and muscular systems. There is no system that is not affected, because it starts from the stomach, is taken up and gets into the blood system, then goes everywhere. It takes a great time for lead to disappear. I have had under observation for fifty-five years a piece of lead in the human body. It was a No. 4 shot when it was put there fifty-five years ago, and it has not absolutely disappeared yet. During the whole of that long series of years the cells of the body have been getting rid of that No. 4 shot. There are still the remnants of it, but in the whole fifty-five years it has been gradually disappearing. That is what occurs in lead-poisoning. It goes from the stomach into the tissues and fixes itself there and takes a long time to disappear. When a man comes to me who is suffering from this complaint, no matter how little or how much, I always tell him he should not resume his work as a painter. That is, as a man who can be infected. There is good reason for that, because some men will go all their lives at it and not be infected. Others could not go for forty-eight hours. That is due to the susceptibility of the individual. In the case of all poisons, like that, some individual or other is extremely susceptible to it; the one-hundredth part of a grain may poison one man, yet it would take a great deal more to poison another. It is not always remembered, this susceptibility to all poisons, and this is a metallic poison; but whether it is metallic or organic, strychnine or lead, some people cannot take a hundredth part of a grain without being poisoned. In the case of strychnine one-hundredth part could not be taken by some men, whereas in the case of an ordinary man the dose is a thirty-second part. It is just the same with lead. The dose, to be poisonous, varies immensely. Therefore I always tell a man once affected that he should not again work in a place where he can be affected by lead.

1629. DEPUTY-PRESIDENT: What is the next case?—The third case was 28th October, 1919, a man 43 years of age, William H. Money. He was a house-painter, and I gave him a certificate. The fourth case was 6th December, 1919, a man aged 28 years, A. B. Durie, ship's painter. He was in the Liverpool State Hospital. I had a consultation about him with Dr. Pirrie, and after that I gave a certificate. The next case was 12th December, 1919, a man of 29 years, W. H. Hill. He said he was a solderer, and I gave him a certificate. After that I had a consultation with several doctors about him—Professor Mills was one of them—and he was then told to go to Prince Alfred Hospital for observation and treatment. I am not sure whether or not there was a court case about that.

1630. But he got your certificate?—Yes, I gave him a certificate first, and afterwards there was a consultation between myself and three or four other doctors, amongst whom was Professor Mills, of the University.

1631. The next case was 6th January, 1920, a man of 42 years, Albert Horstead, a house-painter?—I gave him a certificate. Then on 11th February, 1920, a man 48 years of age, G. Pickering, a house-painter. I gave him a certificate. On 29th March, 1920, a man 42 years of age, Frank Farr, He was a painter at Garden Island, and I gave him a certificate.

1632. Was he a Maltese?—I fancy he was. The next case was on 8th April, 1920, a man of 48 years, Louis Bohm, a house-painter. I gave him a certificate, and was informed he died on 16th April, eight days after I saw him.

1633. Did he appear to be dying when you saw him?—Yes, he was in a very bad state then. The next was on 1st May, 1920, a man of 30 years, William Peach, a house-painter. I did not give him a certificate, and do not know what happened to him afterwards. On 7th May, 1920, a man 51 years of age, Ernest Miner, a house-painter. I gave him a certificate. On 10th July, 1920, Joseph Shannon. I had a consultation about him at Callan Park with Dr. Coutie. That man was extremely bad, and I think he must have died shortly afterwards.

1634. What was his occupation?—I did not enter it in my book, but I presume he was a painter of some kind.

1635. He was a confinee at the hospital?—Yes.

1636. Mr. CONNINGTON: You think he was a painter?—He must have been mixed up with lead; he was an undoubted case of very bad lead-poisoning.

1637. Mr. MANNING: Was he a man who was employed at Lysaght's?—I think he did come from out that way.

1638. DEPUTY-PRESIDENT: Can you tell by referring to your books?—His address was 230 Catherine-street, Leichhardt. He worked at Lysaght's Galvanising Works, Parramatta River.

1639. Will you refer to this paper from the Department of Labour and Industry—it may enable you more particularly to remember the man's conditions?—Yes, he was sieving scrap metal.

1640. He was a labourer sieving scrap metal?—Yes. There was some dubiety as to whether he could get it from that occupation.

1641. Mr. MANNING: Perhaps Mr. Perdriau can produce particulars with regard to this man that Dr. Nash has referred to. I think that is rather important.

1642. DEPUTY-PRESIDENT: We will ask Mr. Perdriau to do that.

1643. Will you proceed with the cases now?—The next was on 19th July, 1920. Charles John Mowbray, 45 years of age, ship's joiner. He worked at Mort's Dock and was a doubtful case; but I gave a certificate and recommended that further investigation be made.

1644. Did he indicate that he had been handling lead paste or lead in any form?—He must have told me.

1645. But you have no note to that effect?—Yes, I have a note here. He said he was a ship's joiner and contracted colic at Mort's Dock, Balmain. I do not know how he could handle the material with regard to that. I said he was a doubtful case and recommended there should be further investigation, because I was not satisfied. Still the weight of evidence was in favour of his being in a condition of that description. There were some very peculiar features about it. There was a thin blue line around two of the lower teeth, so that there was some positive evidence of the condition, but not sufficient for one to say that he was a very clear case. There is no other thing in the whole range of medicine which creates the blue condition around the gum, but there is sometimes debate amongst the members of the profession as to whether or not there is a blue line there. There is some difference of opinion upon it. Of course, I always use a magnifying glass to try and be correct. The infallible sign of plumbism is the blue line on the gums, because that is a place in the body where you can see the index which occurs in no other disease known to the medical profession; so if there is the least indication one has to clean up the gums and polish them up in order to try and be correct. But even with the most careful attempts at being correct, one may err.

1646. What is the next case?—It was on 21st July, 1920, Joseph Parkes. I saw him at the Gladesville Mental Hospital, in consultation with the doctors there, and he was in the terminal stages of plumbism.

1647. Mr. CONNINGTON: What was his occupation?

1648. DEPUTY-PRESIDENT: "Joseph Parkes, 12 Albert-street, Bronte." Please look at this paper and see if you can refresh your mind as to his occupation?—Yes, he was a house-painter. He was 45 years of age.

1649. Mr. MANNING: Is that the diary you make your notes in?—Yes.

1650. Can you distinguish between those which were previously in it, and those you are making now?—These are the notes I enter when I am examining an individual.

1651. But can you distinguish between those you made at the time and those you are making now?—This is only in pencil, and the others are in ink.

1652. I mention it now because we may want to know which were the original notes?—These are the protocols, the original notes. The next case was 27th December, 1920, 29 years of age, E. S. Morrison, Government Printing Office. I gave him a certificate.

1653. DEPUTY-PRESIDENT: Was he a compositor?—He said he was employed at the Government Printing Office.

1654. Do you know if he was a linotype operator?—I have not got down what he was particularly engaged at, except that he was at the Government Printing Office. The next case was on 29th October, 1920, 48 years of age, Thomas Osborne, painter and grainer. I gave him a certificate; then I saw him again on 14th March, 1920, and gave him a further certificate. Then there was litigation in that case, and several doctors gave evidence in the matter. The next was on 30th November, 1920, Ernest A. Conley, 31 years of age, a compositor. I gave him a certificate. The next was on 14th January, 1921, 37 years, H. S. Walker, painter and decorator. I gave him a certificate. Then the next was on 14th March, Thomas Osborne, the same as above. The next was 15th March, 1921, 59 years of age, W. G. Curran, house-painter. This was a case complicated with cancer of the stomach. I had a consultation about him in the Sydney Hospital, and he was afterwards operated on for the stomach condition. He was an absolute wreck, and had been so since I saw him first.

1655. Was he a fatal case?—I saw him a few days ago, but he will die soon. There was considerable difficulty in the diagnosis in that case, because the two conditions produce the same effects; but he had the blue line.

1656. Does that complete the list?—Yes.

1657. The matter you have already given to us represents, in sum and in fact, your experience as certifying surgeon for the disease of plumbism?—Yes.

1658. DEPUTY-PRESIDENT: I will hand the document to you, Mr. Connington, and allow you to cross-examine upon it.

1659. Mr. CONNINGTON: As to these papers produced by Mr. Perdriau, I do not know exactly how he describes them.

1660. WITNESS: It is the official certificate.

1661. DEPUTY-PRESIDENT: It is entitled "Certificate of Disablement."

1662. Mr. MANNING: I wonder could Mr. Perdriau produce those now, for the purpose of examination of Dr. Nash?

1663. DEPUTY-PRESIDENT: I will ask Mr. Perdriau to do so.

1664. Mr. CONNINGTON: I suppose the cases which come to you are cases where the men are unfit to continue working?—Oh, yes; I would not give a certificate otherwise.

1665. And they are in a very bad state?—Not necessarily. Some of these cases were primary—the first start. You must understand in lead-poisoning the men get frequent attacks. A man may have a dozen attacks before seeing a doctor. Others will go at once. It all depends upon how far a man is affected. If the disease is in its initial stages and the man leaves work and does not go back to lead again, he is all right. In those cases where I had consultations at the institution, men were sent there because they could not walk about, or do anything—they were terminal cases.

1666. In any case a man would be off work when he came to you, and your certificate was to entitle him to the benefit of the Workmen's Compensation Act?—My certificate was to show that he was not fit to work at the time, and whatever was necessary was to be done for him. My certificate was to the effect that he was suffering from plumbism and unfit to work for the time being.

1667. When you certified a man is in a state that he is unfit for work?—In one or two cases I gave a man a certificate afterwards, that he was fit to resume work. I think there was one such case.

1668. Taking ordinary cases, how long does it take you to discover whether a man is suffering in any form from the disease?—Sometimes I can do it in five minutes; at other times it would take me an hour. If I saw a man at Gladesville and he was paralysed, a big blue line along his gums, I would know in a moment. If I got a man with a doubtful blue line on the gums and very little anaemia, I would have to take some blood and use a test to see the position. Then one should have a dynamometer, which is an instrument for seeing what power a man has in his muscles.

1669. To satisfy yourself whether or not a number of men suffered from the complaint, would that require a lot of examination?—Sometimes—it depends on the stage of the disease and the signs that are present.

1670. Say, for example, 100 men were selected and put into a room and that you were asked to go through the men and satisfy yourself; suppose we said we would take your opinion as to whether they were suffering to a lesser or greater extent from plumbism, would it take long?—I could look at the gums and one could say, "This man is not suffering from lead-poisoning."

1671. It is not a thing which would require years to carry out?—It would require a lot of experience.

1672. Yes, on the part of the doctor, but from the point of view of making examinations a good deal of work could be done in a short period?—Take the case of Thomas Osborne, some men in the city with large experience differed entirely. We examined him all together, and the man nearly died while we were examining him.

1673. But we have to be satisfied with the opinion of some person. Say we were satisfied with your opinion, I want to know how long would it take you to diagnose a few hundred cases?—If they were all strong, healthy men and able to get about, I could look at them and see if they had any signs of anaemia or any sign of waste—if I had only to look at their gums to see if there were any blue line, it would not take long. But take a case where there is paralysis, it might occupy an hour, and then we might differ.

1674. A suggestion was made here this morning by the union that, for the purpose of inquiring into the question before the Board, it would be advisable that a medical man should be appointed who might meet the men engaged in the occupation and give them a reasonable examination and certify what was the general health of the trade?—

1675. DEPUTY-PRESIDENT: To make a clinical study of the condition of health of the operative in the industry.

1676. Mr. CONNINGTON: They would be brought to you—you would not have to go to the address of each man.

1677. DEPUTY-PRESIDENT: There would be no blue line to guide you in that case at all?—A man might have a blue line and might not be sick at all. Every painter has some lead in him, there is no doubt about that at all. He cannot help himself. He has some, but not enough to poison him. I have pointed out that it takes a variable quantity. If you could say that it takes just so much it would be all right, but you cannot do that.

1678. DEPUTY-PRESIDENT: If a man is excreting lead, would you say he is poisoned?—He is in a potential state of poison; but may not be bad. Still, he has the poison in him.

1679. Mr. CONNINGTON: And the basis for future sickness is already laid. You have told us when a man is sufficiently recovered to get a certificate it is unwise for him to return to his trade?—Yes.

1680. Suppose he does return?—He will be liable to a further attack if he does.

1681. And do you think his life would be considerably shortened if he returned to the trade?—Any man suffering from lead-poisoning is a depreciated individual.

1682. And an attack of lead-poisoning, even in cases where men recover through going to other occupations, threaten his life?—Not if he leaves the trade at first sight, because then the lead which has poisoned him is gradually got rid of. As it disappears he returns to his normal condition.

1683. In your opinion are there any precautions you can suggest which would mitigate the danger to the operatives?—Yes, the first of all is absolute cleanliness.

1684. That would be before his meals and before leaving in the evening?—At all times—the utensils he is using in his trade and his own personal condition. Where it is finely divided men should, to be absolutely safe, wear masks. There is not much danger of lead, owing to it being heavy, getting into the atmosphere. It always drops. The specific gravity of lead is amongst the highest.

1685. You suggest entire cleanliness, particularly before the mid-day meal and again before leaving in the afternoon?—At all times. It is laid down in the profession that men who are cleanly enough do not suffer very much. It is stated by British experts and other people, and is laid down pretty generally, that the great protection is cleanliness.

1686. Say a man knocks off at 5 o'clock, do you suggest anything that may be done for him, or that he may do for himself, which would help him to beat off any ill-effects of his day's work and prepare him for the following day's experience?—Washing himself and polishing himself up.

1687. But he would wash before leaving the job, and probably have another wash before he had his tea. Apart from that, are there any other protective measures you can suggest?—I do not know that anything further would be required.

1688. DEPUTY-PRESIDENT: Would you advise he should take anything in the nature of a prophylactic?—I do not know of any prophylactic—we know a treatment which we think helps to get rid of lead.

1689. What is that treatment?—We give a man sulphuric acid, iodide of potassium, and various things.

1690. I rather suggest there may be some dietary course he should pursue which would minimise the risk he is subject to?—No, there is nothing of that kind.

1691. Mr. CONNINGTON: There are some cases we have heard of where they supply men with quantities of milk twice a day?—That is only an ordinary matter of diet. Plenty of men could not take milk. Men cannot usually take it; it is not a suitable article for me, as a rule.

1692. Cockatoo Island at one time used to supply the men with a glass of milk twice daily?—But did they all drink it?

1693. However, you think the absence of a supply of milk will not prejudice a man's health very greatly?—To my idea it is a most excellent article of diet, but there are lots of men who do not like it.

1694. With regard to shortening the hours of employment, I do not want you to express an opinion, because I suppose the shorter the hours the less harm there is?—If you do not go near lead you do not get lead-poisoning.

1695. Out of the nineteen cases you have given us, one reported twice. Out of those cases there are fifteen house-painters?—Yes, something like that.

1696. DEPUTY-PRESIDENT: Look at the lists, Mr. Connington. You called as a witness a man named Warden. Does his name appear on the list?

1697. Mr. CONNINGTON: No, it does not.

1698. DEPUTY-PRESIDENT: Does it appear on Dr. Nash's list?

1699. Mr. CONNINGTON: Yes, J. H. Warden. It says there is a query mark and no entry in the note-book.

1700. WITNESS: I did not read that out because there was no entry. Perhaps Mr. Perdriau might see if he has any record of that.

1701. DEPUTY-PRESIDENT: That would be the twenty-first case, would it not?

1702. Mr. CONNINGTON: The twentieth, because one man was reported twice.

1703. DEPUTY-PRESIDENT: Suppose a man came along twice in five years, would you regard him as one case?

1704. Mr. CONNINGTON: The witness said he attended once and was given a certificate, and another attendance was when he got a certificate to return to work.

1705. WITNESS: I saw him twice—that was Osborne.

1706. Mr. CONNINGTON: Then that would make twenty-one cases.

1707. DEPUTY-PRESIDENT: You regard Warden as a case not certified by yourself?—I see his name, but do not know anything about him. There was some error made about him, but I do not know what it was.

1708. DEPUTY-PRESIDENT: Can you refresh your mind from the certificate?—There is no certificate.

1709. Mr. CONNINGTON: His name was not entered on our return, Mr. Deputy-President.

1710. DEPUTY-PRESIDENT: But he gave evidence to the effect he had been certified to as suffering from plumbism.

1711. WITNESS: If that was so, Mr. Perdriau would have my certificate. He might have come to me, and there was nothing in it.

1712. Mr. MANNING: Mr. Perdriau says that they do not get these certificates in every case.

1713. DEPUTY-PRESIDENT: Naturally the insurance people demand the certificate. Is there no copy of the certificate in the Department?

1714. Mr. MANNING: No.

1715. Mr. CONNINGTON: Mr. O'Brien says Warden gave evidence that the certificate he got from Dr. Nash was handed to the Sun Insurance Company.

1716. DEPUTY-PRESIDENT: Was there not a copy of that certificate filed with the Department of Labour and Industry?

1717. Mr. CONNINGTON: I did not ask Warden any questions upon that point.

1718. WITNESS: It is strange I have not got his entry in my book—I do not know why it is.

1719. Mr. CONNINGTON: The table shows sixteen house-painters were attended to, and five other people?—Yes. Of course, the majority are house-painters.

1720. Can you say whether from your experience you are of opinion that house-painting is a more dangerous calling than any other section of the lead industry?—It depends upon where one is. If one were at Broken Hill at the time the mines were started it would be due to that. At Newcastle, when the sulphide works were started, it was due to that. In Newcastle the men who suffered from lead-poisoning were chronic beer drinkers. That is, those who came under the observation of the medical profession.

1721. Once a man becomes leaded, the desire to take drink is very keen in him?—I should not think so.

1722. But certain medical authorities assert that is the case?—I do not know of that. I know plenty of men who are thirsty without having had anything to do with lead.

1723. But it is said that lead stimulates the desire for drink?—I should not think so.

1724. I will take your opinion upon it. It is stated that personal cleanliness, while very essential, was not everything—the great danger from lead-poisoning was due to rubbing down, which men have to do in connection with their work?—I do not know what you mean.

1725. Personal cleanliness is essential, but it will not altogether prevent a man from becoming leaded?—Not a susceptible individual, but it will the ordinary man—that is the professional opinion.

1726. I am reading from a British medical opinion, by Dr. Legge:

“Personal cleanliness is very desirable, but Dr. Legge thinks the danger from this source (inattention to cleanliness) slight compared with the danger from the dust produced by dry rubbing down. In this he is supported by Mr. Goadby and the other medical and scientific witnesses.”

—That is the scrubbing down of material. If lead were not such a heavy material—

1727. It would be still more dangerous?—Yes, it would float about; but it is so heavy that its tendency always is to drop, so if anyone were not underneath it, it would pass away.

1728. These opinions are very strong on the point?—Still, in my opinion, they do not give sufficient weight to the specific gravity of lead, the weight of lead as compared with the atmosphere, and the other conditions surrounding it.

1729. This is another opinion:

“It is established by the evidence of the medical authorities who have been before the committee that the great source of danger resides in the lead dust created by sand-papering and dry rubbing down. This (the dust) is common ground in all lead industries and regulations.

“Dr. Legge ascribes to dry rubbing down the great source of the trouble in painting operations. This testimony is supported by that of Dr. Kaup, of Germany; Dr. Rambousek, Austria; Dr. Colliss, Mr. Kenneth Goadby, and Dr. Dobbie.”

A number of authorities point out that the rubbing down?—I went over Europe pretty well.

1730. The question has been considered all over the world?—It has great weight with me, the specific gravity.

1731. Mr. CONNINGTON: Each doctor respected the opinion of the other, because they quoted each other and marshalled all the information on the

subject, then formed their individual opinions on the facts, and from what they inferred from the opinions of the others.

1732. Did you examine a Mr. Brown, a painter, in the Kogarah Hospital?—I was supplied with some information about that man. Do you know the date?

1733. It was about the end of 1918?—I was asked to see him, and while negotiations were being made for me to go out there, he died in the hospital.

1734. Then you did not make any report on his case?—No.

Cross-examined by Mr. MANNING :—

1735. I want to ask you first a few questions about the system you adopt. You do not examine a patient until you first have a reference from the Department?—I always send people in to the Department now, because in the initial stages the men used to come and say “Mr. So-and-so, Secretary of our Union sent me here.”

1736. Now they bring a letter to you from the Department?—Yes.

1737. And that letter indicates the illness from which they claim to be suffering?—No. A man usually has attached to the papers he brings to me, a statement by the man over him in his employment, and a paper signed by himself. These state what he is working at, and what he complains of, and there may also be a doctor's certificate attached—the first doctor who has seen him.

1738. DEPUTY-PRESIDENT: Would you suggest he has already made a claim upon his employer, before reaching you?—There is a statement in which he says he became affected at a certain time, left his work at a certain time, and that is vouched for by some other man. If he has been to see another doctor then there is usually a certificate to that effect.

1739. Mr. MANNING: Does that document state the illness from which he claims to be suffering?—If there is the doctor's certificate attached to it, it states so in the doctor's certificate.

1740. Is that the only place in which it is stated?—As far as I know.

1741. Does it not appear in the departmental letter that is sent on to you?—I do not think so.

1742. Just have a look at those copies of letters which are said to have been sent on to you. You will observe that in all cases they state that the man is suffering from lead-poisoning?—This letter is from the secretary of some union or other, who says that a man is in the Sydney Hospital suffering from lead-poisoning.

1743. DEPUTY-PRESIDENT: Is not that signed by the Under Secretary?—He says, “I have to inform you that the secretary of the Operative Painters and Decorators' Union has notified that so-and-so is in the Sydney Hospital suffering from lead-poisoning.”

1744. Do not the words “Under Secretary” appear under the signature?—Yes.

1745. So that letter would be written by the Under Secretary of the Department of Labour and Industry, who would report to you that he had received information from the secretary of the union?—Yes.

1746. Mr. MANNING: That is to say, that you got the information from the Under Secretary of the Department of Labour and Industry that this man claimed to be suffering from lead-poisoning?—That is so.

1747. Then that is produced to you?—Yes.

1748. And then your investigation proceeds on that introduction?—Yes, that is right.

1749. You have prepared a list of the names of those twenty individuals who were suffering from lead-poisoning?—Yes.

1750. But you have notes in your book with respect to all of them?—Yes.

1751. It is not all the notes that you have in your book which appear on that paper?—No.

1752. I would ask you to refer to your book to give an indication of the symptoms shown by each one?—Yes. Would you like any particular one?

1753. I want them all?—I can tell you the cardinal symptoms without reference to the book.

1754. But I mean of these individuals?—Yes. There are definite cardinal symptoms which apply to all—signs and symptoms.

1755. Would they be symptoms on which you would certify?—Yes.

1756. You would certify straight away on these cardinal symptoms?—Yes.

1757. Will you enumerate them?—First of all there is the anaemia, that is the condition of the blood. Secondly, the want of power in the muscles—weakness of the muscles. The third is the blue line on the gum. I go into all other things, measuring the power of his heart muscle, examining the urine, and things like that. Those are the three cardinal symptoms—anaemia, wasting of the muscles, and the blue lines on the gums. The blue line with regard to lead-poisoning is the chief one, because it does not occur in any other disease.

1758. Were those symptoms present in all the cases you have there?—Yes, every one.

1759. Will you just read out the notes to give us an idea of the kind of entry you have in the book. Take the first one you have in your book?—4319, Charles Low, house painter and decorator, Wentworth-avenue, City: he has a blue line on the gums, around some teeth on the right side of lower jaw.

1760. What is the next one?—The next one is E. Crump, 5019, Bexley: he had difficulty in walking; he had a weakness of the muscles of the arms; blue discolouration of mucous membrane on gums, especially of lower jaw; he had no teeth.

1761. What is the next one?—Henry Money, 1059: musculature of hands, musculature of body, small amount and of poor quality; unclean gums, margins stained blue; reflex of forearms; he had a trace of albumen in his urine.

1762. DEPUTY-PRESIDENT: Do you test the urine for lead?—Not for lead, but to see if the kidneys are disordered in any way.

1763. You do not make a test of the urine for lead?—No. The test for lead requires a chemical laboratory and a special examination. If I wanted that done he would have to go to a analytical chemist. I do not do it. I could do it, but the time occupied would be too much. I only get 10s. 6d. for the certificate.

1764. Mr. MANNING: You say you do not examine the urine for lead purposes?—Not for the lead, but I examine it in lead-poisoning.

1765. DEPUTY-PRESIDENT: You examine it for derangement of the kidneys?—Yes.

1766. Mr. MANNING: Do you examine it in every case that comes before you?—In almost every case.

1767. You have not examined it in the first two cases you mentioned?—I have not got a note of it.

1768. It would be a most important thing to enter in your book?—Yes.

1769. I take it if it was not entered there that the examination was not made?—Not necessarily. There is a little difficulty about this. When we were initiating this business one did not know exactly how far he would have to go. As I got on with my notes, it became very much more difficult.

One did not recognise there was any question of legal matters, where he would have to stand up to his notes. In the first few cases I was not quite so particular.

1770. Particular about what?—About being absolutely correct as to my diagnosis.

1771. So that in the first case you mentioned there?—That is what I say. I was not so particular there as I was when I got along. I did not know what the responsibility was.

1772. So that in the cases of those two first individuals you did not examine the urine?—I would not say, but I have not got an entry here. I may have done so; however, in every case I do now.

1773. Would you refer to the next case after that you mentioned last?—11719, Arthur B. Jury.

1774. Was there an examination of the urine there?—No, because he was in the Liverpool Asylum.

1775. Does that make any difference?—Yes, because the other doctor is responsible then. He was not under me at all, but was under another doctor.

1776. Were you not making an entry of the symptoms?—I examined him at the Liverpool State Hospital.

1777. Would not you enter in your book what the symptoms were?—Yes, and I have them down here.

1778. But you have not got the urine?—No, because it was not necessary in that case.

1779. That is another case where there was not an examination of the urine. Turn to the next?—W. H. Hill, 11019, trace of albumen. That was examined a couple of times.

1780. He was the soldier?—Yes.

1781. Is he the man who died?—I do not know what was the end of him.

1782. Take the next case: did you examine the urine there?—Yes, that was Albert Austin, 12619.

1783. Was there a trace of albumen?—Yes.

1784. And the next case?—E. G. Pickering, 12719. I have not any record of his urine. I have a record of his blood. There is a diminution of 20 per cent. in his blood hæmoglobin.

1785. But you had not a record of his urine?—No. Of course the urine test is not an essential test. It is not an absolute necessity in any case. It is only a confirmatory condition.

1786. You have not given it an examination of the urine in his case?—No. I have an examination of the blood.

1787. Take the next case?—Frank Farr, 3320: no, I have no record of his urine.

1788. In regard to the one before the last, you said you examined the blood?—Yes, in the case of George Pickering.

1789. What was the examination you made of the blood?—For the amount of hæmoglobin; that is the colouring matter in the blood.

1790. What was the object of that?—To see the state of anaemia.

1791. Does that give an indication?—Yes. Anaemia is a diminished amount of colour in the blood.

1792. That gives an indication of anaemia?—Yes.

1793. Is anaemia necessarily an indication of lead-poisoning?—It occurs in almost all cases of lead-poisoning.

1794. Could you say, simply because it was a case of anaemia, that it was a case of lead-poisoning?—No.

1795. It might mean a dozen other things?—Twenty other things easily.

1796. Give us the next case?—Lewis Bohn, 1420. He had a yellow lemon colour on his lips, faint blue line on his gums round the lower teeth, and weakness of arm muscles. I have no record of urine there.

1797. What about the next case?—William Peach, 4720. Vomiting was one of the symptoms there. He had albumen in his urine. He also had a suspicion of sugar.

1798. Did you examine the next one?—I think most of them were examined. Ernest Miner, 1520: he had increased reflexes, anaemic lips and nails; blue line round gums, and a weak musculature. I have no record of his urine or of his blood. The indications were quite sufficient there. His signs were quite sufficient for the certificate.

1799. What was the next case?—Joseph Shannon, 6220. I saw him at Callan Park.

1800. And the urine would be tested there?—Yes.

1801. Was it not a necessary part of the examination on your part to ascertain the condition of his urine?—Not when I am in consultation with another doctor, because he gives me the information that he has done it. Besides, these cases were such terrible cases that you probably could not get urine if you wanted it in that case. This man was a dying man. He only lived a short time afterwards. He had great bed sores on him, and you probably could not get urine from him. In those cases at Liverpool, and in other cases, especially at Callan Park and Gladesville, you cannot get the urine because the men are not able to hold their urine, they pass it away all the time.

1802. In other words, that was a foregone conclusion. Take the case of Pickering, where there was no consultation and no examination of the urine?—It is not an essential part of the examination.

1803. You maintain that on principle?—Not on principle. I state it as a fact.

1804. That is a principle of medical science that you apply to these cases?—There is no principle at all. It is a fact that it is not a necessary sign. If you get the three cardinal phenomena you are quite certain.

1805. What about the next case?—Charles Stephen Mowbray, 6820. I made a careful examination of his urine. They nearly all have a suspicion of albumen. As a matter of fact, if you analysed the urine sufficiently carefully you will always find a suspicion of albumen in these people.

1806. That was a doubtful case, was it not?—Yes, that he should be further investigated.

1807. I suppose the investigation of the urine proceeded on the further investigation?—He would have a different kind probably. He would have to have his muscles examined carefully. There was something peculiar in his urine, and I consulted half a dozen authorities on that case. He had a pink condition in his urine. I have only seen two cases in my books and notes for the past thirty-eight years where a pink condition of the urine occurs.

1808. I suppose that examination of the urine would take place on the deferred examination?—No, it was taken on the first examination.

1809. Straightaway?—Straightaway. There was no deferred examination as far as I know. That was my recommendation.

1810. Take the next case?—Joseph Parkes. He was another terminal case at Gladesville; he was dying at Gladesville.

1811. You did not bother examining him for urine?—No. You could not get it if you wanted it.

1812. Take the next case?—Ernest Stirling Morrison, 1920. On the second occasion I examined him.

1813. What date was that?—No; I only saw him once, and gave him a certificate. There was no examination of urine then.

1814. What was the next one?—Thomas Osborne, 1920. I examined his urine.

1815. On the first occasion?—Yes.

1816. What is the entry about him?—It is 29th October, 1920. On the first occasion I did not examine his urine, but on the second occasion I did.

1817. That would be in March?—Yes. I saw him first on the 29th October, 1920, and then I saw him on the 14th March, 1921. On the 14th March I examined his urine.

1818. What is the entry about the urine in March?—Colourless, 1002; very little value for examination, because it was what we call *urina spastica*; that is, he passed a large quantity, probably due to fear of the examination; so it was not of any value from a diagnosis point of view.

1819. What was the next one?—Ernest A. Connolly, 9520. I did not examine the urine in his case.

1820. Take the case after that?—Henry S. Walker, 11121. He was in Sydney Hospital. There was no examination of urine there.

1821. Take the next case?—William George Curran. That is a man whom I saw at the Sydney Hospital.

1822. Did you examine him?—Yes.

1823. And his urine?—No. That was all on the chart at the Sydney Hospital, and I examined the chart.

1824. You have no entry in your book?—No; there is a chart in the hospital, and on that chart is the examination of the urine and all particulars, and one simply looks at the chart and sees about the urine.

1825. What is the next one?—There are no more.

1826. Do you keep that book as a record in the event of a patient coming back to you at some future date?—I keep it for occasions like this, and all other occasions when I want information.

1827. One of those occasions, I suppose, would be in the event of a patient coming back on a subsequent occasion?—Yes.

1828. As it stands there, if you do not enter up the examination of the urine you do not have that record?—Sometimes I do not.

1829. You do not have it for future reference in cases where you rely upon the hospital record for the examination of the urine?—I go there for a consultation, and it is their business to have all those things; not mine.

1830. I know it is their business, but it would be of use to you to have it in your book?—One cannot have everything. They have the entry there. I am not responsible for that.

1831. I am not suggesting that you are responsible, but would it not be convenient for you to have it?—No.

1832. Would it not be following out the plan that you adopted in keeping that book?—I have all sorts of things in this book. Every different case demands a different plan. There is no set plan.

1833. Anyway, you say you would see the examination of his urine at the hospital and would get the information there?—Yes.

1834. Do they examine the urine in all cases in the hospital?—I hope they do.

1835. I ask you, do they?—I do not know. I cannot tell you what they do.

1836. But do they?—How do I know what they do? I can only tell you what I do. I cannot tell you what other people do.

1837. You do not know?—No; and it is none of my business. I do not mind whether they do or do not. It is their business.

1838. Are they supposed to?—In a hospital they are supposed to make a thorough examination, and in regard to a hospital case they must examine the individual, and one of the essentials in every case in a hospital is the examination of the urine. I do not know whether they do it or not.

1839. Would you go so far as to say that it ought to be done in every case in a hospital case?—It ought to be done in a hospital.

1840. You cannot give me that information, whether it is done?—I am not responsible for what they do. I know what they ought to do.

1841. I thought perhaps you might know what they do?—How can I know? I know lots of hospitals where they do not do their work properly at all, and I know others where they do it excellently.

1842. In a properly conducted hospital it ought to be done?—Yes; in every case that goes to a hospital one of the first things to be done should be to examine the urine.

1843. In every case where you have gone to the hospital you have seen it on the chart?—Yes. In every case which goes into a hospital, if it is a proper hospital, one of the first things to be done is to examine the urine.

1844. In every case which is recorded in your book, and which you have spoken of this afternoon, did you, in every case where a patient was in a hospital, see the analysis of his urine?—Yes; I saw the charts in every case.

1845. I am not asking about the chart; I am asking whether you saw the analysis of his urine?—The analysis is on the chart in every case.

1846. You spoke about muscular weakness being discerned in some cases?—Yes.

1847. How do you determine that?—I get hold of a man and examine to see the size of his muscles and see if they are equal on both sides. Then I examine them with my hammer, and see what the reflexes are like. Then I try him by various operations of his joints, trying the strength of his joints, and I get him to squeeze my hand and see what he can do. As I tell you, to do that thoroughly, I should have a dynamometer for his hands, by which he can squeeze and make a record. I have not got a dynamometer, and I cannot do that.

1848. In the case you mentioned was there any microscopical test of the blood?—Yes, sometimes I do that. I examine the urine microscopically very often.

1849. In which case did you do it?—I cannot say I did it in this case.

1850. Will you say that in none of these cases was there a microscopical examination?—No, there was not. Mind you, I often do examine urine microscopically, but not in these cases.

1851. I want to ask you generally for some expert information on the subject of lead-poisoning. What are the symptoms that you look for;—can you divide them up into different categories?—In lead-poisoning above all things we note the symptoms of a blue line on the gums. In the whole range of medicine a blue line on the gums only occurs in lead-poisoning, and that is above all things a sign of lead-poisoning. Lead-poisoning is indicated by a blue line on the gum. The next two things are what you call pathognomonic, *i.e.*, which indicate the disease; they are muscular weakness and anæmia. The blue line, muscular weakness, and anæmia are the three cardinals. The first thing one sees when a patient sits down is his anæmia and his weakness if he is at all advanced in the disease. One can tell when he walks into the place that there is a man who is anæmic. Then you can tell by his walk that he is weak in his muscles. If, in addition to those signs, you can find a blue line on his gums, he is suffering from lead-poisoning. There

is no other disease in medical literature where those three phenomena occur together.

1852. Would you say that the presence of the blue line without the muscular weakness or the presence of anæmia was in itself an indication of lead-poisoning?—Yes, absolutely.

1853. Exactly what do you mean by lead-poisoning?—I mean, if you see a definite blue line on the gums, that man has lead in his body.

1854. But is there lead-poisoning?—That is the initial condition of the lead-poisoning. Lead is a foreign material in the body. There is no lead as a constituent of the normal body.

1855. You say it is lead-poisoning if lead is in the body?—Yes.

1856. Do you recognise any scientific distinction between lead-poisoning and lead absorption?—No.

1857. So you do not recognise any distinction between the cases where the tissues are affected by the lead and where lead is absorbed and excreted?—Lead is always being excreted. If lead gets into the body it is always being excreted.

1858. What I wanted to know was this: do you recognise any scientific distinction between the case where lead has affected the tissues and a case where lead has been absorbed and has been excreted?—I am afraid you do not put it in a medical way.

1859. Perhaps not. Do you mean to suggest that you do not understand the question?—Well, I do not understand your question. I do not see what you are trying to get at.

1860. First of all, do you recognise what one means by lead affecting the tissues?—Getting into the tissues, yes.

1861. Do you recognise what is meant by lead being excreted from the body?—Yes, by the urine.

1862. Do you recognise any distinction between those two things?—No; they are the exact antithesis of one another. At the first point you make, the lead gets into the blood; at the second point you make, the lead leaves the blood.

1863. Do you call the second case a case of lead-poisoning?—Well, if a person can take lead in and get it out before it settles anywhere in any of his tissues nothing happens, because the cells of the blood have got rid of it before it is taken in.

1864. Do you recognise the second case as being a case of lead-poisoning?—If there were no phenomena it might be something acute which only happens on that one occasion, and the whole thing may disappear and there would be no poisoning there because the tissues would be able to deal with the amount of lead which got into the blood and had all passed away.

1865. Would you regard that as a case of lead-poisoning?—No, there would be no poisoning at all there.

1866. Would the blue line be manifest in a case of that kind?—No, not if it is taken in and excreted at once. There would be none to deposit.

1867. The blue line then does not appear until the lead has got into the blood?—The lead has to get into the blood to produce the blue line. Instead of passing away by the kidneys and other ways, it is deposited under the mucous surface about the gums. Mind you, it is deposited everywhere else, as well as there, but that is where everyone sees it. It is deposited in the same way in the muscles and in the nerve tissues. The blue line on the gums happens to be a convenient place where one can see the deposit of lead, which deposit takes place in every other part of the body.

1868. You say that the blue line only occurs when the lead gets into the blood?—That is all. It must get into the blood in order that it may be

deposited. There is only one way in which lead or any other poison can get into the tissues and that is by the blood.

1869. May I take it, then, that in cases where the blue line is apparent that is an indication of lead-poisoning?—You can say that that man is leaded.

1870. That would be an indication of lead-poisoning as distinct from a case of lead absorption?—There is no difference between lead absorption and lead-poisoning except in amount. It takes a certain amount of lead in every individual to produce the phenomena of poisoning.

1871. Would you say this, that in cases where the blue line is apparent that is a sign of lead-poisoning as distinct from lead absorption?—No, they both occur together—the blue line is a sequel to absorption. In every case they accompany each other.

1872. So the blue line does appear where lead is taken in and excreted?—You may have a blue line and have lead being excreted at the same time. As a matter of fact you do, because if you could analyse the excretions sufficiently carefully you would undoubtedly find some lead in the excretions. That is, if you could do it sufficiently carefully.

1873. I am asking about the presence of the blue line. In a case where there has been no lead-poisoning at all, but merely lead excretion, is the blue line sometimes apparent?—Might I suggest a way in which you should put that, in order to clear it up. Say incapacity from lead-poisoning. Lots of people may have lead in their tissues and not be incapacitated from work.

1874. I am not on the question of capacity for work. I am purely on the question of the condition of the human body, whether it is poisoned or whether it is not. I ask you, in cases where there is lead taken in and excreted, is it not a fact that the blue line is apparent?—If there is a blue line then there is always lead being excreted.

1875. Then you wish to correct what you said before?—No; I do not.

1876. Did you not say before that the blue line was not apparent when there was only lead excretion?—No, I did not.

1877. At any rate, whatever you said before, will you say now whether the blue line is equally consistent with lead excretion and also with lead poisoning?—There is never a blue line without lead excretion. I can quote you—

1878. Supposing there is no lead-poisoning at all, but lead excretion, would you expect to see the blue line then?—That might be a phenomenon that would exist, and there would not be enough lead for a blue line.

1879. Would you see the blue line in every case where there was lead excretion?—Not in an acute case.

1880. Would you see it in a subacute case?—Yes, in all probability, and in a chronic case always.

1881. The mere presence of the blue line does not indicate necessarily lead-poisoning?—Yes, it does always.

1882. DEPUTY-PRESIDENT: Can there be pigmentation of the gums by reason of lead without degeneration of the blood vessels?—There could possibly be that. Pigmentation is not necessarily due to the degeneration of the blood vessels. Pigmentation is due to the living cells.

1883. If there is no degeneration, lead may pass through the body without doing any harm?—Poisons can go anywhere where living cells can go, and at all times during life living cells are passing in and out of the blood vessels, and they carry the lead with them.

1884. Lead itself is mischievous because it causes a degeneration of the blood vessels or of the organs of the body?—In the first case it causes destruction of the cells of the blood; that is, where its chief initial danger occurs. After that you get degeneration of the tissues.

1885. The question is this, whether the blue line is undeniable evidence of the destruction of the blood vessels, or whether it is a pigmentation that can

co-exist with healthy blood vessels and healthy organs of the body?—It can exist with healthy blood vessels in small amounts.

1886. Mr. MANNING: As far as I can see at one time the doctor says one thing and at another time another thing.

1887. WITNESS: That is not so.

1888. Mr. MANNING: Take the question put to you by the Deputy-President: first of all, is the pigmentation of the gums an indication of the degeneration of the blood vessels?—Not necessarily.

1889. Can lead-poisoning happen otherwise than by degeneration of the blood vessels?—Yes.

1890. In what other way?—By being carried by the cells of the blood into the nerve tissues or the other muscular tissues, and it is a very moot point with medical men which is the process which first happens. You would necessarily require blood vessels to convey the disease to let lead through, because the living cells of the body carry the lead about. The red blood corpuscles or the white blood corpuscles carry the blood about and they can wander in and out in exactly the same way as small animals can go through a fence or anything else.

1891. Is the presence of the blue line an indication that the lead has got into the tissues?—Yes, outside the blood vessels.

1892. And where you see the blue line it is an infallible indication that the lead has got into the tissues?—Yes.

1893. DEPUTY-PRESIDENT: Is it an equally infallible indication that the lead has degenerated the blood vessels or the organs of the body or the nervous system?—It is a sign that there is lead there.

1894. But is it a sign that there is degeneration of the blood vessels?—It is a sign the lead is not only there, but that there is lead in all the other tissues.

1895. Is it evidence that they have degenerated under the influence of lead?—It is the sign of lead, and if you find the other conditions present, and you find the blue line, then you must conclude that that man is suffering from lead-poisoning.

1896. Mr. MANNING: The presence of the blue line is not consistent with a condition where the lead has been merely taken in and excreted?—No, that is an acute condition. Lead-poisoning is always a chronic condition. One can easily conceive that condition, that a supply of lead will be taken into the alimentary canal and will be picked up by the living cells and taken into the blood and straight into the kidneys. Where there is a blue line, lead is constantly being taken up by those cells and picked up by the alimentary canal, taken into the blood and taken away round, and it gets into the tissues through the blood vessels by the living cells. It could not be done in any other way than by the living tissues. Then it is deposited in this place, and owing to the irritating condition there it produces the phenomena of lead-poisoning.

1897. What we are concerned with is the result, which is that where you see the blue line there is lead-poisoning and lead-poisoning infallibly?—Yes.

1898. That is a short way of putting it?—Yes, and that is the correct way. Our profession has been discussing the other matters for the last thousand years.

1899. What is the most important avenue for excretion of the lead from the body?—I suppose the urine or from the anus. Those are two important ways. I should think, if it could be analysed and investigated properly, it would be found that the intestinal dejecta would take away most of it, because of the heavy weight of the lead. As a matter of fact, I do not know of any investigations that are already satisfactory in that regard. We

examine the urine always because it is the most convenient, and it gives us the necessary indication.

1900. But you think the other way is the more usual way?—I should think so. That applies generally.

1901. You have indicated the blue line. What is the second indication that you look for?—The anæmia—the altered condition of the blood.

1902. What examination do you make to ascertain that?—If I want special information I use what is called Talquist's method; and that is, I get some blood on to some absorbent paper and I have a scale with which I compare it.

1903. Did you make that examination in any one of these twenty cases?—I think I quoted one where I did.

1904. Was that the way you did it?—Yes.

1905. And that was the only case in which it was done?—I do not know. I have one case that I quoted for you where I thought it was necessary to do it. I was in doubt as to whether he had any anæmia, and in order to rectify that doubt I examined him. In the other cases there was no doubt in my mind.

1906. You have no other case mentioned in your diary where you examined the blood?—I did not notice it.

1907. What was the third test you mentioned?—Muscular weakness.

1908. And you determine muscular weakness by the methods you have suggested?—Yes. The muscular reflex is another condition.

1909. Do you take into consideration colic as being an indication?—That is what a man tells me. That is what is called a symptom. I prefer signs—something I can see for myself. A man may come in and say that he had a pain when he did not have any, and I do not give very much weight to that.

1910. Colic may be caused by acute indigestion or some acute appendicitis?—Every man has a different cause for his own colic.

1911. It may be caused by any number of different things?—Everything will give you colic if it gets inside the wrong man.

1912. You do not attach any importance to that?—I attach importance to what a man tells me. I always ask a man to tell me what he thinks himself.

1913. Do you attach any importance to the presense of colic as indicating whether or not there is lead-poisoning?—Yes, as a symptom. That is what the man tells me.

1914. Supposing a man told you he suffered from colic, and he told you nothing else, and you did not see anything else, you would not imagine he had lead-poisoning. You associate colic with a number of different things?—Yes, I could not tell you how many.

1915. It might be caused by any number of different things?—By lots of things. Cucumber, for instance.

1916. Supposing that a patient told you he had dry-retching in the morning, what would you associate with that?—I would recognise it as a symptom.

1917. Of lead-poisoning?—Yes, or lots of other things, poisoning. Everything is a poison if you take enough of it.

1918. Indigestion is a poison?—It is caused by poisons, yes.

1919. That might cause the dry-retching in the morning?—Thousands of things might cause that. That is a symptom. Cucumber, or if you have been out the night before, or little things like that might cause it.

1920. I want to ask you about the effect on the nervous system; is that peculiar to lead-poisoning, or might it be due to other things?—Other poisoning or alcohol.

1921. DEPUTY-PRESIDENT: Do you look for cardio vascular trouble?—That is anæmia and blood pressure

1922. That is, you take a man's blood pressure when you are putting him through the process of diagnosis?—Yes. The anæmia condition is a sign. You take the blood pressure to see the condition of the heart muscle. The heart muscle and all muscles are affected.

1923. Mr. MANNING: Then the muscular weakness is a sign of anæmia?—There are a dozen different kinds of anæmia.

1924. With regard to the avenues in the body through which the lead is carried, how does that come about?—By the blood.

1925. Where does it first come in contact with the body?—In the alimentary canal.

1926. And anywhere else?—They do say sometimes you can get it by its going into the lungs, but the alimentary canal is the main avenue.

1927. I think you have told us your views on the subject of the rubbing down of the surface which has been painted to prepare it for a new coat of paint. You do not regard that as being a source of introducing the lead into the body?—I should not think so.

1928. At what stage of the operation would you say that the lead got into the body?—Usually by want of care on the part of the men, and want of cleanliness.

1929. You mean, by it getting on to the hands?—Yes.

1930. And then getting into the mouth, or by getting it on to the food?

1931. Do you recognise any danger from any fumes when the paint is being put on?—There may be some slight danger.

1932. Do any fumes come at all from white-lead?—It is very questionable, owing to the specific gravity of the lead.

1933. Take, for instance, the case of white-lead mixed with oils and turpentine. You know the smell you get from fresh paint. That is not the smell of white-lead at all, is it?—It is the smell of the oil. There is no appreciable odour attached to lead.

1934. To talk about inhaling the fumes of white-lead is ridiculous, is it not?—Well, it does not commend itself to me.

1935. I mean, when the paint is being put on?—You see, both the oil and the lead are such heavy things. Odours are impalpable. You cannot estimate the weight of an odour, although it may be very pungent sometimes.

1936. We have heard from one operative painter some suggestion about a spray which is caused when he puts the paint on to a door. Is there any possibility of the spray getting into the respiratory organs—his mouth or his nose?—He would have to be very close to it.

1937. Do you regard it as a feasible proposition at all?—I do not know what it is.

1938. Can you imagine a man painting that wall with paint and any spray being caused by that, such as to get into his mouth or his nostrils?—I do not know anything about that. I have never seen anything like that.

1939. Do you think it is reasonably possible?—I have never seen it. I do not know what they mean.

1940. It is not recognised as one of the causes?—I do not know what it is in the trade. I plead ignorance in that regard.

1941. As far as you are concerned, you maintain that the lead-poisoning gets into the system through uncleanness?—To a large extent, want of care on the part of the employees.

1942. Can you suggest any other means by which it may get in?—Yes, it is possible it may get in in a lead-mine, for instance, where the lead is being constantly smashed about by the point of the pick, and the air is constantly being driven through the mine in order to keep it ventilated. In that way a man might get lead into the mouth through the air he is breathing.

1943. So that despite its weight it might be conveyed upwards?—It is not conveyed upwards, but it is conveyed along at the level of his mouth, and it may be falling from the roof. For instance, in the Broken Hill mines there is that difficulty with the dust, also at Cockle Creek, there were big streams of air running into the compressors and flying about there, and then, of course, the lead might be picked up and taken into the mouth.

1944. With regard to painting?—There is a very minimum of risk in ordinary painting, because the air is not moving about, and they are not confined as a rule.

1945. Even if there were a risk, I suppose it could be obviated if they were to wet down the surface first?—By care men working in lead are able to minimise the risk. For instance, at Broken Hill there is very little lead-poisoning now compared with what there used to be, and there is very little at the Sulphide Works compared with what there used to be.

1946. To get back to a room which is being painted, assume for the moment that if it is rubbed down dry and the lead can get into the mouth and the nose, could not that be easily obviated by wetting the surface first with water or with paint; it could not fly about then, could it?—Not if it were wet.

1947. That would be a very simple remedy to apply in that case—rubbing down wet?—There are lots of remedies; there are lots of preventives or things that minimise the risk.

1948. So far as the mixing of paint is concerned, in the early stages you have the powdered white-lead and the oil. If a man is standing over that and mixing it up and putting it into the paint box, I suppose it is quite conceivable that there is a risk of it getting into the alimentary canal?—Yes.

1949. I suppose, apart altogether from the risk of getting it through having it on his hands, that would be the greatest risk he would run—when he was mixing?—I do not know much about it. I have never been a painter.

1950. MR. CONNINGTON: Do you understand the procedure associated with the work of painting?—No.

1951. If I spoke to you about rubbing down wet or dry, would you know anything about that?—No.

1951A. I take it you confine yourself to your experience as a doctor?—Yes.

1952. DEPUTY-PRESIDENT: I propose to make the list of twenty cases produced by Dr. Nash an exhibit in the inquiry.

[*List of twenty cases of persons examined by Dr. Nash put in, and marked Exhibit No. 1.*]

1053. DEPUTY-PRESIDENT: Mr. Manning, do you ask that these letters produced by Mr. Perdriau should be made exhibits in the case?

1954. MR. MANNING: No. I only wanted them so that I could ask the doctor about them. I do not believe in encumbering a case with exhibits.

1955. DEPUTY-PRESIDENT: Then they can be returned to Mr. Perdriau. The Board will not sit to-morrow, but will resume this inquiry at 10 o'clock on Friday morning.

(Witness retired.)

(At 4 p.m. the further hearing was adjourned until 10 a.m. on Friday, the 1st July.)

FOURTH SITTING.

FRIDAY, 1 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, Sydney, at 10 a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. WILLINGTON

MR. ROUTLEY

MR. COOPER.

DEPUTY-PRESIDENT: I do not want to interfere with the arrangement of your evidence, Mr. Connington, but I have asked one or two gentlemen to attend, and I think it is due to them that I should give them an opportunity of discharging their obligations to us promptly. I therefore propose to call a representative of the Treasury Insurance Board to give the Government's experience as an insurer of the incidence of white-lead illness amongst the Government employees, and particularly painters.

MR. CONNINGTON: That will be quite agreeable to us. Since our last meeting, Mr. Mendle, who is a master painter in a small way, was rung up by us, and he is anxious to supply the Board with information. He has had practical experience as a painter for many years, and is now in business in a small way on his own account. You might treat Mr. Mendle as one of your witnesses.

DEPUTY-PRESIDENT: Is he here to-day?

MR. CONNINGTON: Yes, he is here; I promised that I would make the request to the Board to interpose him as a witness.

DEPUTY-PRESIDENT: Very well.

GEORGE HEYNES SPENCE, sworn, examined as under:—

1956. DEPUTY-PRESIDENT: What is your position?—I am clerk at the Treasury, actually in charge of the accident division of the Treasury Insurance Branch.

1957. How long have you held that position?—Since the 31st July, 1917.

1958. How long has there been a Treasury Insurance Board?—In 1911 we started fire operations but not accidents.

1959. When did you commence to operate in relation to accidents?—Since the inception of the Workmen's Compensation Act, 1st July, 1917.

1960. What was the scheme?—The scheme is an internal arrangement for the insurance to accept Government insurance of all classes.

1961. The scheme is one under which the Government becomes a self-insurer against all risks under the Workmen's Compensation Act?—Exactly.

1962. That, I take it, is a financial and business arrangement rather than a development in administrative operations?—It is purely internal. It is the policy of the Government to carry its own insurances through the insurance branch.

1963. And the insurance branch is a section of Treasury administration?—Exactly. It is a sub-branch of the Treasury.

1964. That is, there is no new department of insurance?—No. We have not as yet legislative power; it is only by executive minute.

1965. In the absence of legislative power the Treasurer, as a mere matter of business arrangement, insures the Government in its various capacities as employer against the risks which arise under the Workmen's Compensation Act?—Yes; under the control of the Insurance Board. It is controlled by a Board.

1966. But I take it the Board is a creature of the Treasurer?—Exactly.

1967. Have you any reference to the conditions under which this insurance is given by the Insurance Board?—The indemnity by the Board is that imposed by the Workmen's Compensation Act.

1968. The risks covered are those which arise under the Workmen's Compensation Act?—Yes; the cover is a provision against full liability under the Act.

1969. Have you a copy of the policy or cover?—We do not give policies.

1970. Can you give us some idea as to what are the conditions of the cover?—The conditions of the cover which we grant to the Government departments in respect of what we call employers' liability is equal to that which the insurance companies grant. It covers the whole liability under the Workmen's Compensation Act, and in addition a Common Law liability for claims at Common Law up to a limitation of claims for £750.

1971. You are aware, as a man engaged in that line of business, that the insurance policy is a complex of conditions—the conditions under which the insurer will meet the claims of the person who has suffered injury in the course of his employment?—Precisely.

1972. Is there any statement of the conditions under which the employee of the Crown will be paid by this Insurance Board in the event of his meeting with accident or suffering from an industrial disease?—No; I do not think that varies generally. The liability is purely that of the employer.

1973. Perhaps you do not follow me. Let me put the simplest possible illustration of what I am suggesting to you. One condition of outside insurance is the payment of premiums?—Exactly.

1974. Is the Government department protected against risk without payment of premiums of any kind?—No; each department pays its own premiums.

1975. That is one of the conditions?—Yes.

1976. It is not an unconditional cover?—Certainly not. Each department pays its own premiums on the basis of hazard involved in its operations.

1977. What are the other conditions?—The conditions under which we operate are on all-fours with those under which the insurance companies operate. In other words, our Board largely has regard to the ratings which the associated insurance companies in New South Wales adopt. Anomalies arise in connection with certain departments, which we correct to meet service conditions.

1978. Is there any condition as between your Insurance Board and the departments that may be compared with what are known as the endorsements on the outside policy?—No. I might explain that it is understood between the insurance branch, and the various Government departments that the underwriting is done, and the basis is that adopted by the outside companies, although it is not actually put down in policy form. Between the Government departments it is not considered needful that we should institute complicated machinery as is needed in outside insurance.

1979. Then I take it the position amounts to this: that whatever the injured person can enforce by way of a claim against his employing department will be made good as against that department by the insuring Treasury board?—Under the Workmen's Compensation Act, up to the limitation of £750 at common law.

1980. And that, other than rate conditions, there are no limitations imposed upon the department by the Treasury Insurance Board?—No. The Government departments gets from the Insurance Board an equal cover to that which the ordinary employer outside gets from his insurance company. There is no difference. The only thing is that the outside insurance is

actually put down into a contract in policy form, whereas between Government departments it is accepted simply on payment of the premium.

1981. Have you a schedule of the rates that are charged to the departments with respect to this cover?—Our Board at the inception charged the companies' rates and tariffs, since which time they allowed 25 per cent. deduction, and the companies practically followed that, I believe. I might say that from an underwriting point of view many of the large Government departments are not comparable with the tariffs. I could not quote a better illustration than the Department of the Inspector-General for the Insane. The tariff rate for the hospitals was, I believe, in the nature of 40s. originally, and actual experience over many years showed that such a high rate was not justified. That proved to be an anomaly, which has been rectified by our Board.

1982. Are the two areas of work comparable in any way; when you speak of an outside hospital you do not speak of a mental hospital, do you?—I am speaking about the mental hospitals particularly.

1983. Are there any outside mental hospitals?—No. One large cause of the difference in the rating is that the insurance companies' business is obtained from many small channels, involving a good deal of work, a good deal of printing, and a good deal of overhead charges and commissions, which we do not have to meet. We simply get the business in one bulk payment.

1984. That is, the cost of procuring business to you is small, whereas it is large to the outside companies?—Yes; it is at a minimum.

1985. Will you tell us which year's rates was adopted by the Treasury Insurance Board; you say that the Treasury Insurance Board commenced its business by adopting the insurance companies' rates of a particular year;—what year was that?—1917.

1986. The rates of 1917 were adopted then?—Yes.

1987. Mr. WILLINGTON: Are those rates still continuing?—They have been amended since.

1988. DEPUTY-PRESIDENT: Have you a list of the rates of 1917?—Not here.

1989. Will you supply this Board with a list of the rates charged in 1917?—I can only supply the companies' tariff, the original print.

1990. Was there any information given to the departments in the form of a document published by the Treasurer that the rates would stand at certain figures?—The departments were informed at that time that the companies' rates decided by the local underwriters would be applied for the first year.

1991. Can you supply the Board with a copy of the rates incorporated by reference in the business relations of the departments and the Treasury with reference to insurance under the Workmen's Compensation Act?—I have one copy only of the tariff for 1917.

1992. Will you be good enough to produce it?—Yes. I have not got it here with me, but I will produce it later. It is the ordinary print of the companies at that time. I cannot say that our Board followed it letter for letter and figure for figure.

1993. To what extent were there variations in the rate?—It depended on the individual losses.

1994. Let us come down to the immediate concerns of the Board, the risks in respect of plumbism?—That is involved in many trades.

1995. Was there a different rate for different trades?—No; it is one rate for one hazard or trade, whether the lead risk be involved or not. Take

painting: I think originally, speaking from memory, the rate was 20s. in 1917.

1996. In how many occupations is there a lead risk so far as the Government service is concerned?—I am afraid I could not say.

1997. Not so far as the Government service is concerned?—No, I could not say in what employments it would occur that lead would be handled.

1998. Can you tell us in connection with which employments claims have been made for compensation for lead illness?—In painting only. The six cases I have here are all painters—each one of them.

1999. Mr. CONNINGTON: Were there many cases?—I have only six here. I cannot say that that is my full record, because we have not made any provision to expressly separate these cases.

2000. DEPUTY-PRESIDENT: Do you not amend your rates from time to time in the light of experience?—Yes, at the end of each year.

2001. Do you not summarise your experience in order to find out what the risk of the occupation is?—Yes.

2002. Have you done that in respect of painting?—No, we did not do it in respect of each individual class of employment. We do it in respect of each departmental risk. For instance, if the Building Construction Branch of the Public Works Department is taken as an example, we do not rate their painters and their carpenters and their bricklayers, but we rate the general employees in one flat rate.

2003. Are they subjected to the same range of risks? Are the employees of the Public Works subjected to the same risks merely because they are grouped as employees of the Building Construction Branch of the Public Works Department?—Of course, the operations of some of the Government departments cover such a wide field that to separate each individual hazard involved in the operations and rate it hard and fast on the tariff would be a work which our Board did not consider would be commensurate with the gain. The intention is to keep the insurance side of the thing as simple as possible.

2004. If the Registrar-General employs a carpenter and a painter for the purposes of maintenance and repairs, would they come under a rate different from that provided for carpenters and painters in the Building Construction Branch?—Quite possibly.

2005. So that the rate has no direct relation to the risk?—It might not in each case, but broadly speaking it should have. I will just explain that by saying that the general employees in the Building Construction Branch are rated at the building rate. They may be painters or other workmen.

2006. Where do you find the building rate in the schedule of rates for the outside companies?—Under building. The current rate is 30s., I think.

2007. In the pamphlet which indicates the rates charged by the Liverpool and London and Globe Insurance Company painters are covered by a rate of 20s. and paint manufacturers by a rate of 13s. 6d. The builders not otherwise classified, including workshop making for own jobs only, are obviously not painters, and the rate is not appropriate to the risk incurred by painters, because it is 5s. in excess of the rate fixed specifically for painters, as their rate is 25s. So that you could not have been very closely guided by the outside arrangements with regard to builders?—We are not tied in any way, but the companies are by their own agreement. Our Board is not tied.

2008. But this, you see, is rather a serious discrepancy. If we take it that the Treasury Insurance Board was guided by the outside rates, and that it insured all the employees of the Building Construction Branch of the Public Works Department at the rate fixed for builders by the outside

companies, then it must have charged in respect of painters a rate of 25s.?—Exactly.

2009. But you say it charged a rate of 20s.?—We charged the Building Construction Branch 25s. in the first year of operations. We charged the tariff rate.

2010. In the first year of operations, that is in the year 1917, the outside rate was 20s. for painters?—Yes.

2011. And the business rate in that year for builders not otherwise classified was 25s.?—Exactly.

2012. So that if you look for a rate under the heading of builders you will find only the 25s. rate?—Yes. I think it is a condition of that tariff that the hazard of the risk shall be determined by the character of the operations of business. I think it is in one or two of the front pages of the book. For instance, a station-owner might employ a blacksmith systematically year in and year out. The company would not rate the wages of the blacksmith at the blacksmithing rate. The whole wages would go in with the station wages.

2013. But you do not suggest that the Building Construction Branch employs a carpenter who would do carpentering work in one week and painting in another?—No. Those operations are characterised by building.

2014. That is so, and the proper rate for the class of men engaged in building work is given under the occupation name in the list. You say that you do not look to the occupation name to find the rate, but you look to the group name?—Exactly. The majority of builders have painting to do as incidental to their building operations. It would be quite impracticable for underwriters to rate the wages of individual employees according to the hazard they are running year by year. It would be an impracticability to do it.

2015. It is on the occupation rate, is it not?—Yes.

2016. You rather suggest to my mind that the Treasury Insurance rate is a rate appropriate to a group of operations?—Yes.

2017. That is not the basis of the rates for business purposes outside, so that I am at a loss to understand how you can be guided by outside practice if you do not accept the outside basis of rating?—Originally we applied the tariff rate, but not word for word according to the tariff; we applied it in a broad way as a basis of underwriting rates which the company had fixed. Even on the first year's operations, concessions were given to meet the requirements of special risk in the Government service. What actuates our Board in doing that is that it is desired to make the underwriting aspect of our work as simple as possible, whereas if we endeavoured to follow the companies underwriting practice a big lot of work would be involved.

2018. Perhaps you had better tell me what were the rates charged in respect of painters in each of the years, starting with the year 1917?—Do you mean for the Government service?

2019. Charged by the Treasury Insurance Board. It only deals with the Government service, I take it?—Yes. I think in very rare instances has the painters' rate been charged to any Government department, because the painters would be regarded as incidental to the operations of the particular department.

2020. What was the rate charged in respect of painters for each of the years from 1917 onwards?—I could not tell you that without having the papers here.

2021. Will you be good enough to inform yourself on that particular point and come back with the information?—Take the Public Works Department and many others; presumably there are incidental painters employed. The

Inspector-General for Mental Hospitals has no doubt a painter here and there which I may have no knowledge of at all.

2022. What rate is charged in respect of the painters in the employ of the Inspector-General for the Insane?—The whole rate is a flat rate.

2023. That is, the hospital rate is paid for painters who are employed by the Inspector-General for Insane?—Exactly.

2024. Then your rates are not comparable with the outside rates so far as occupation rates are concerned?—That is all a matter of individual under-writing. One insurance company might rate the painting rates of a hospital separate, and another might put it all into one and rate it comprehensively.

2025. The outside hospital rate in 1917 was 4s. 6d. You would not insure the painters at the mental hospitals for 4s. 6d., would you?—7s. 6d. I think is our present rate. That 4s. 6d. rate is not for mental hospitals; it is for ordinary hospitals, and not mental hospitals, I fancy.

2026. Obviously that would be so, but it does not discriminate, and we have to take the rate book as it reads?—I think there is a rate for mental hospitals.

2027. It says, hospitals 4s. 6d., painters 20s. So that the painters employed in State Mental Hospitals would be charged for at the rate of 4s. 6d., or, as you suggest, 7s. 6d., and not at the rate of 20s.?—Yes. That would not weaken the provision of fixing payment to painters in any way.

2028. No. I really have not that consideration in my mind at the present time. I thought we might learn from your experience whether the risk to which painters were subjected was, from your point of view, an increasing or a diminishing risk. That view would be reflected, I surmise, in the rates you charge. Apparently, since you have not distinguished occupations from the groups to which they belong, and inasmuch as you have not summarised your experience, you cannot help us in that regard?—No. I can only say that I very much question whether the premium which our Board has derived from painters has been sufficient to meet the claims. I cannot prove it in any way, but I doubt it.

2029. Can you tell us your experience with regard to the morbidity of painters?—We have had six claims only, so far as my records show, since 1917, within the whole operations of the Government service.

2030. Can you give us the details of the claims?—I have the cases here. One case was R. C. Browne—

2031. Are you giving them in chronological order?—I will give them in any order you wish.

2032. Will you take the earliest case first?—The earliest case we had was from the Education Department, a man named Charles E. Crump, on the 31st January, 1919.

2033. What are the proceedings through which the claimant goes in order to establish his right to compensation against the Department in the first place, and against the Treasury Insurance Fund in the second place?—Do you mean the proceedings which the Act lays down, or the proceedings arranged by the Government?

2034. I mean the proceedings in fact; not necessarily the legal proceedings, but the proceedings that are actually taken in practice?—Ordinarily a painter suffering from lead-poisoning would report the matter to the Department, and the Department, without any further formality, would complete what we call our accident claim report. That is a printed form, printed by the insurance branch, with the requisite particulars; that is furnished to our branch for consideration.

2035. So that notice having been given to the immediate employer, that employer sends the claim on to you?—Yes.

2036. What happens to the claim when it reaches your hands?—We determine whether or not it is within the purview of the Act. If so, we admit it, and we authorise the particular Department to pay the compensation which the Act grants.

2037. Do you not look into the facts of the case to ascertain whether the claim is *bona-fide*?—Exactly. We do that before any admission is made.

2038. Will you tell us about that aspect of the matter?—In this particular case?

2039. In regard to all cases generally. The claim is received by the Treasury Insurance Board, and then an investigation, I take it, is made of the man's health and general physical condition?—Do you wish to deal with lead-poisoning cases only?

2040. Yes. The same principles will apply, I presume?—The same principles, with one or two small exceptions. We get the claim somewhere, from a particular department. In the event of a lead-poisoning case, we have to determine that the man is actually incapacitated through lead-poisoning.

2041. How do you do that?—Generally we do that by accepting only the evidence of the certifying surgeon appointed under the Act.

2042. Is the man examined by a doctor on account of the Treasury Insurance Board?—He may be.

2043. But not regularly?—Not necessarily.

2044. When the claim is received, you intimate to the Department that you require the certificate of the certifying surgeon in order to complete the claim?—We would not necessarily. It depends on the particular features of the case.

2045. Have you ever paid a claim in respect of lead-poisoning without obtaining the certificate of the certifying surgeon?—I do not think so. You see, if we have a case of lead-poisoning which is so pronounced, and we refer the man to the Government Medical Officer and he confirms that view, the man may have produced evidence of his own private practitioner in proof that he has lead-poisoning and is incapacitated thereby. If we submit that to the Government Medical Officer and he confirms that, we might very well allow that man's claim without the evidence of the certifying surgeon.

2046. That is exactly the question I put to you two or three minutes back. Have you your own doctor to whom you refer the claimant for examination before you make payment of his claim?—Yes.

2047. You suggest that you have, that the Government Medical Officer is the person to whom the claimant is referred?—Yes.

2048. In order that his claim may be checked?—Yes, but the Board have no definite principle that every case must of necessity go before the Government Medical Officer.

2049. Would payments be made in relation to a claim based upon plumbism without reference to a doctor?—No.

2050. So that we may take it that in the case of painters who are claiming to have suffered from the handling of lead, every claimant is sent before at least one of the two doctors, the certifying surgeon or the Government Medical Officer?—Yes, before we would admit it.

2051. Then having received the certificate from either the certifying surgeon or the Government Medical Officer, you would determine, in the light of what is contained in the certificate, whether that claim should be met?—Exactly.

2052. If you determine that the claim should be met, payment is met, I suppose, in accordance with the terms of the Act?—Yes, by the particular department, under the authority of the Board.

2053. And if you determine that the claim should not be allowed, what is the procedure?—We advise the Department not to admit any liability; that we cannot admit liability, that we do not consider the case within the provisions of the Act. That happened in one case here.

2054. Was there litigation?—No, I do not think so. I think it was eventually settled. It was the case of Bohm. I think Dr. Nash referred to the case in giving evidence before the Board.

2055. You say the claim was subsequently adjusted by a compromise of some kind, or was it entirely disallowed?—Application was made for proceedings in this case, but we ultimately agreed to consent to an award.

2056. So that the claim was allowed?—Yes, and the money was actually paid.

2057. So that the hesitation about allowing the claim was only a temporary matter?—The point involved was that the evidence was against the man having died of lead-poisoning.

2058. Have you ever litigated a claim in the Courts?—Not for lead-poisoning.

2059. You have litigated some claims then?—Yes, but not for lead-poisoning.

2060. Mr. WILLINGTON: Might I ask whether a claimant who might be refused has any recourse against the Government in regard to his claim?—The ordinary procedure in actual practice, if compensation is refused, is for the union to take the man's case up.

2061. But has the claimant any recourse against the Government if they refuse?—Yes, the Act clearly sets that out.

2062. Mr. MANNING: But the employees can contract out of the Act. I mean, there may be a system adopted by which they contract out of the Act.

2063. DEPUTY-PRESIDENT: Yes, if the benefits under the system are equivalent to those given under the Act, there can be a private system.

2064. Mr. CONNINGTON: Still, the Act has control of the thing.

2065. WITNESS: There is no contracting out of the Act within the public service. The policy of the Department is for all departments to insure within their own scheme. That provides all that will be necessary.

2066. DEPUTY-PRESIDENT: Mr. Manning suggests that the Government might provide a scheme which is somewhat better than the scheme under the Act, and therefore not be subject to claims made in accordance with terms of the Act?—Yes, but that has not been done in the Government service, although the provision is there.

2067. Mr. MANNING: Section 7 has not been followed?—No. With regard to the workmen's rights, I think Rule 81 enables the workmen to issue arbitration proceedings against the Under Secretary of the Department or the Commissioners, if it is the Harbour Trust or Water Board, without the appointment of a nominal defendant, as is necessary in most proceedings against the Government.

2068. DEPUTY-PRESIDENT: So that litigation as between the Government Departments and the individual is contemplated as likely and has been provided for in the regulations?—Yes.

2069. Will you return now to the case of Crump?—Crump was an employee of the Education Department as a painter, and was 57 years of age.

2070. Have you got his industrial history there?—No.

2071. You are merely reading from the certifying surgeon's certificate?—No; I am reading from the information supplied to our Board by the Department.

2072. Did the Education Department in that case give the industrial history of the claimant?—No.

2073. What is the date of that claim?—31st January, 1919. Dr. Nash gave his certificate in the case of Crump on the 22nd April, 1919.

2074. Have you got a second certificate from Dr. Nash there?—There was a prior certificate on the 17th April by the man's private doctor.

2075. Mr. MANNING: I do not think it was in the case of Crump. It was the case of a person who was examined first in March and then in May.

2076. DEPUTY-PRESIDENT: Dr. Nash's note reads to this effect: "Gave certificate to the 22nd July, 1919, when he may resume work." Dr. Nash evidently prognosticated a return to health on the 22nd July.

2077. Mr. CONNINGTON: Apparently the Government were paying him before they received Dr. Nash's certificate. According to the witness's statement, it appears that Mr. Crump was receiving compensation before Dr. Nash issued the certificate.

2078. Mr. MANNING: It is a fact to which I attach a considerable degree of importance.

2079. DEPUTY-PRESIDENT: I will not press it, Mr. Manning, if you will get out the facts.

2080. Mr. MANNING: I am much obliged to you for what you have said, because I do attach a great deal of importance to what Dr. Nash did when he prognosticated that the man would be able to return to work on the 22nd July. It was the opinion of a scientific man of what could be done in a case of lead-poisoning which came before him.

2081. DEPUTY-PRESIDENT: The first paper in connection with this case is a form provided by the Insurance Board for the report of claims and particulars of accidents under the Workmen's Compensation Act. That claim gives the name of the Department insured and the section of its business concerned by the claim. It also gives the name of the injured workman and his address, and the place where the workman is to be found at the date of the record. It gives further the nature of his usual employment, and states whether he was so employed at the time of accident or disease; it gives his age and his marital condition. It then proceeds to state whether the workman was in the direct service of the Department at the time of the accident or disease, and whether the workman was actually performing work within the proper scope of his employment at the time of the accident or the incidence of the disease. The industrial history is referred to to this extent: the form gives the date at which the workman entered the service of the Department?—We do not ask for that information now. We have amended that form very considerably since then.

2082. It also gives whether the employment has been continuous since the date of his entry into the service. You do not seem to attach very much importance then to the industrial history of the claimant?—No, not in the preliminary stage. We might search into it later, if we found it needful to do so.

2083. The question is then asked, has the workman been employed concurrently by any other employers as well as by you? Then particulars of the wage are given, and the period for which that rate of wage has been paid; particulars of allowances, and the weekly value of allowances. The form then proceeds to state where the accident occurred. The form contemplates accidents rather than industrial diseases?—Yes. It does not provide for industrial diseases specially. As a matter of fact, these disease cases are few and far between, and we always treat them specially.

2084. What do you regard as the date of the disease?—The date of the disease is the date which the certifying surgeon returns. The Act provides

specially for that. The date of incapacity is prescribed in the Act as the date of accident.

2085. Then information as regards the cause of the accident is asked for, and that in the form is answered by the three words "See medical certificate." The next question is "At what time and date was the accident first reported, and to whom?" The answers, in the case of Mr. Crump, are 31st January, 1916, and to Dr. Graham. Who is Dr. Graham?—He is a practitioner employed by many insurance companies to do workmen's compensation work. I believe his address is "Ocean House."

2086. MR. MANNING: Who employs him?—We do not employ him, but I believe that some of the companies employ him.

2087. DEPUTY-PRESIDENT: This may be that the man reported his condition to Dr. Graham?—Yes.

2088. The question is at what time and date was the accident first reported, and to whom? You surmise that the man reported his condition of disease to Dr. Graham?—The purpose of that question is to determine the question of notice of accident under the Act. The Act involves upon the workman the obligation to give notice. That question is to elicit information as to whether notice has been given.

2089. But an employee of the Department of Instruction would not give notice to an outside doctor, would he?—It would not count as notice under the Act if he did.

2090. That is why I am surprised to find it referred to in this departmental paper. You think he claims to have given notice to Dr. Graham?—He may have done.

2091. Then there follows a series of twenty questions which refer to particulars of the accident and injuries. One or two are important. One question is: "Previous to this accident had the injured workman any physical defect or infirmity? If so, describe same." In this case the answer is, "Not any." He had a good deal of confidence in himself apparently. That paper, having been received by the Department of Education, was sent on to the Treasurer, and it is marked "Examination requested, 6th May, 1919." The date of the claim is 23rd April, 1919. On the 6th May the officer in charge of the Treasury Insurance Board wrote to the Secretary of the Department of Public Health, stating that the Board required a medical examination in the case of C. E. Crump, and if a date can be advised the workman will be instructed to attend at your Department." It was then informed by Dr. Palmer that Mr. Crump should be instructed to attend at Dr. Palmer's office for medical examination at 9 a.m. on Thursday, the 15th instant, that is the 15th May. On the 15th May, after examination, Dr. Palmer indicated that the case was suitable for consultation with a physician, and the Board (that is the Board of Health, I take it) would be glad if such consultation could be arranged at an early date in order that some definite medical opinion might be procured as to whether or not the workman is incapacitated as a result of lead-poisoning?—That would be the Insurance Board.

2092. That letter is written by Mr. Cowie, on the 20th May, 1919. On the 15th May Dr. Palmer issued a certificate describing as fully as possible the nature of the injuries, and adding supplementary remarks. His description of the injuries in Crump's case is as follows: "Complains of weakness of legs and wrists and of pain in small of back (no other pain). Eats well, but is constipated. Reflexes good. No sugar or albumen in urine. Nothing special about his gums." In the remarks as to general condition of the examinee, Dr. Palmer says that he is good for his age. The doctors differ apparently in this case. In answer to the question, "Do you consider that such injuries are the direct outcome of and properly attributable to the

accident above described?" Dr. Palmer says, "Said to be due to lead-poisoning. This is possible, but not certain." In his supplementary remarks Dr. Palmer says, "Not an easy case to decide, and suitable case for consultation with a physician. Mr. Crump is, probably from age and want of health, getting beyond his proper work, but could do such light work as that of caretaker, watchman, &c." Mr. Cowie endorses the paper in this way: "This workman is reported to be suffering from lead-poisoning, this being one of the specially scheduled industrial diseases in respect of which compensation is claimable under the Workmen's Compensation Act. My Board desire, if practicable, that definite opinion be stated as to whether or not the workman is incapacitated as the result of lead-poisoning." Dr. Sinclair-Gillies, on the 27th May, 1919, wrote to the officer in charge of the Treasury Insurance Board as follows:—

"I examined Mr. Crump to-day in the presence of Dr. Palmer. He states that he has been twenty years in the employ of the Education Department working as a painter and paper-hanger, and has had perfect health until the end of last year, when, while working in the country, he complained of abdominal pains and constipation. The pain came in attacks, and was severe, lasting for varying periods and occurring at a few weeks interval. By January he had become so weak in the legs that he could not walk. At the same time he had great weakness in his wrists and arms. He was treated by Dr. Graham, and is now considerably better, but is still weak and has much pain in his back. The pain in his back is worst at night.

On examination he is a well-nourished, muscular man, and there is no definite wasting anywhere either in his legs or arms. Beyond the fact that his grip is weak in both hands, there is no sign of loss of power. His reflexes are normal. There is no lead-line present on the gums. This is only to be expected, as his teeth have all been extracted some time ago. Nothing abnormal was detected in his heart, lungs, abdomen, or urine. At present Mr. Charles Crump shows no signs of any disability whatever beyond slight weakness in his arms. His history is quite consistent with the view that he has suffered from lead-poisoning, and Dr. Graham, whom I rung up on the subject, is quite definite in his statement—that there is no doubt that his symptoms were those of lead-poisoning, and that he is now well on the way to recovery. Though there is not sufficient evidence obtainable from his present physical condition to warrant a diagnosis of lead-poisoning, I think, in view of his history and the findings of Dr. Graham, it is probable that he is recovering from that disability. Whatever the cause of his illness may have been, he is fit for light overseeing work, and should be completely restored to health within a month or two.

"Faithfully yours,

"SINCLAIR GILLIES, M.D."

On the 4th June Mr. Cowie, who is apparently the officer-in-charge, wrote to Mr. C. E. Crump in these terms:

"With reference to your claim upon the Department of Education for compensation under the above Act as a result of incapacity through lead-poisoning, please take notice that you are required to attend upon Dr. J. B. Nash, 219 Macquarie-street, Sydney, at 11 a.m. on Friday next, the 6th instant, for the purpose of medical examination."

Mr. Crump attended Dr. Nash, who issued this certificate:

"I, John Brady Nash . . . having personally examined Charles Ernest Crump on the 22nd day of April, 1919, I am satisfied

that he is suffering from lead-poisoning, being one of the diseases to which the Workmen's Compensation Act applies, and is thereby disabled from earning full wages at the work at which he has been employed; and I certify that the disablement commenced at least three months before the date of this certificate."

That is dated 22nd April. The full name and address of the workman are then given; the process at which the workman was employed is given as painting and decorating, and the name and place of business of employer is given as the Department of Public Instruction, Government of New South Wales. The leading symptoms of disease are stated as weakness of muscles of fore-arms and legs; blue discolouration of mucous membranes on gums.

On the 4th June Mr. Cowie wrote to the Under Secretary of the Department of Education:

"With reference to your communication of the 25th April, I beg to advise that consideration has been given to the claim of the above workman for compensation in respect of incapacity arising from lead-poisoning.

"Mr. Crump was examined on the 27th ultimo by Dr. Sinclair Gillies, with Dr. Arthur Palmer, Chief Government Medical Officer, in consultation, and the former indicates that in view of the workman's history, and the finding of Dr. Graham, it is probable that he is recovering from lead-poisoning—further, that he is fit for light work such as overseering, and should be completely restored to health within a month or so. This medical evidence, in conjunction with the certificate of Dr. Nash, dated the 22nd April, is acceptable to my Board, and warrants recognition of this claim under the Workmen's Compensation Act.

"In consequence I now authorise payment of compensation at the rate of £1 19s. 9d. per week as from the 31st January last to date. The payment form is enclosed.

"Mr. Crump is being instructed to attend Dr. Nash for further examination at 11 a.m. on Friday next, the 6th instant, when the question of compensation beyond the present date will be further considered after receipt of further opinion.

"As it appears that Mr. Crump has nearly recovered from the effects of his illness, and will probably have nearly done so in the near future, it is hoped that it will be practicable to your Department to make available to him an offer of suitable employment."

On the same day Dr. Nash was written to by Mr. Cowie to this effect:

"I now desire that you should again examine this workman on behalf of this branch and furnish a certificate as to whether or not incapacity still continues as the result of lead-poisoning, and my Board will be prepared to pay the fee of £1 1s., which, it is understood, members of the British Medical Association impose for such a certificate. In accordance with this Mr. Crump has been instructed to attend upon you at 11 a.m. on Friday next, the 6th instant, when it is hoped it will be convenient for you to undertake the required examination."

Mr. Crump was then told to call upon Dr. Nash—

2093. MR. MANNING: Apparently he did not go until the 22nd July, according to Dr. Nash.

2094. DEPUTY-PRESIDENT: On the 6th June, 1919, Dr. Nash wrote to Mr. Cowie to this effect:

"I have this morning carefully examined Mr. Charles Ernest Crump, lately occupied at the Public Instruction Department. As compared with his condition on the 22nd April, 1919, he is much improved in a general way. In my opinion he would not continue in good health if he

returns to his occupation as a painter and decorator, but he is fit for light employment, such as caretaker, or, better for him, similar duties in the open air."

The effect of that report is indicated in a letter from Mr. Cowie to the Under Secretary to the Department of Education, dated the 12th June. Then the claim of Crump's was passed for payment.

2095. MR. MANNING: I do not know whether there is any reference to that certificate of the 22nd July by Dr. Nash.

2096. DEPUTY-PRESIDENT: I have not yet looked at all the papers. There were then negotiations for the purpose of finding a job for Mr. Crump. We do not need to concern ourselves with those. On the 9th July Mr. Crump was informed by Mr. Cowie by letter:—

"With reference to your claim for compensation upon the Department of Education for disability through lead-poisoning, please take notice that you are required to again attend upon Dr. J. B. Nash, Macquarie-street, for the purpose of further medical examination. You are requested to arrange for such attendance on or before Monday next, the 14th instant."

Dr. Nash is invited by letter by Mr. Cowie to again examine this workman, and he says, "If practicable it is desired that you should give opinion as to whether the workman is now free from the effects of lead-poisoning, or, in other words, whether disablement from that cause now no longer exists. Should you, however, consider that recovery is not yet complete, I would be glad if you could indicate to what extent the workman is at this date still disabled through lead-poisoning, *i.e.*, one-half, one-quarter, &c. Instruction has been issued to Mr. Crump to-day to attend upon you forthwith." On the 11th July Dr. Nash addressed the officer-in-charge of the Treasury Insurance Board in the following terms:—

"Dear Sir,—

"I have this day carefully examined Mr. C. E. Crump. I found (1) that the signs of plumbism have disappeared, and (2) in my opinion he is fit for work suitable to a man of 57 years old."

The other papers do not appear to be very material.

2097. MR. CONNINGTON: Apparently, in Dr. Nash's opinion, he was unfit for painting.

2098. MR. MANNING: That is one of the complexities of the position.

2099. DEPUTY-PRESIDENT: The papers are very interesting as dealing with the complexity of the particular case of a claim.

2100. MR. MANNING: If that is so, Dr. Nash has altered his opinion about plumbism since the 22nd July, 1919, if that letter is Dr. Nash's letter.

2101. MR. CONNINGTON: Why?

2102. MR. MANNING: Because his state was—

2103. DEPUTY-PRESIDENT: We will deal with that later.

2104. What is the next case?—The next case we have is that of George Pickering, employed by the Building Construction Branch. This case was reported to the Insurance Board by the Department on the 12th February, 1920.

2105. Was there any complication in that case at all?—No. The claim was supported by Dr. Nash's certificate.

2106. Was there any medical referee?—No. We have never had recourse to a referee as yet.

2107. Was the Government Medical Officer involved in that examination?—I will just tell you if there are any interesting features about this. Compensation of £2 per week was authorised on the 11th March by the Insurance Board. Dr. Gibbe, the Government Medical Officer, gave evidence that

Pickering was suffering from evidence of chronic lead-poisoning, but not of a very severe type.

2108. Does he say anything about the symptoms?—Dr. Nash would give the symptoms, I think. The printed form provided under the Act which Dr. Nash usually gave his certificate on, provides in question 4 for the leading symptoms of the disease. That is one of his duties, to give the symptoms. In this case they were, “Blue line on gums, anæmia, muscle atrophy.” He was examined by Dr. Nash again, and his certificate is dated 13th April; at that date he was still unfit to follow employment. The second statement is: “At the end of five weeks from this date he will be in condition fit to resume his ordinary work. (3) His disability is, with due care by him, not permanent, though employment other than with lead paints would be better for him.” In view of Dr. Nash’s opinion that disability would terminate five weeks from the date of his certificate, the Insurance Branch instructed the Building Construction Branch to suspend payment on the 18th proximo, that was at the expiry of the five weeks. There was some slight adjustment made in connection with odd days, and the payment actually terminated on the 22nd May. As far as we know, Pickering returned to work then. The total payment made to Pickering was £29, from the 11th February, 1920, to the 22nd May, 1920.

2109. Mr. CONNINGTON: When was the first payment made?—The first payment was made as from the 11th February. I could not tell you the date the actual cash was paid.

2110. In one case it stood over from January to June?—That case of Crump took a lot of determining. The only special feature in this case of Pickering’s was the provision enabling one to obtain some contribution from other employers who have employed the man during the previous twelve months.

2111. DEPUTY-PRESIDENT: Was an attempt made in that case to obtain some contribution?—It was considered, but we did not go any length with it. As a matter of fact we gave up the case. The Operative Painters and Decorators’ Union of Australia furnished us with the names of quite a large number of previous employers—twelve previous employers.

2112. In the preceding twelve months?—Yes; between February, 1919, and February, 1920, there were twelve other employers as well as ourselves. We have a right under the Act to look to them for a contribution, but the difficulty of getting it was not worth the bother. Only a small amount was involved altogether, and we did not take it up. The next case is that of Richard E. Browne. This was a fatal case. This was also a Building Construction case. He was 55 years of age. As far as I recollect, that was a doubtful case, too.

2113. DEPUTY-PRESIDENT: I see by the papers that on the 28th October, 1919, W. H. N. Randall, who presumably is a doctor at Kogarah, says: “This is to certify that Mr. Browne is suffering from peripheral neuritis, which, in my opinion, is due to chronic lead-poisoning.” That apparently is the first of the papers. On the 5th December, 1919, Messrs. Cecil A. Coghlan & Company, solicitors, put forward a claim on Mr. Browne’s behalf, and addressed it to “the Under Secretary, Public Works Department, Sydney.”

2114. Mr. MANNING: Was the first man a doctor?

2115. DEPUTY-PRESIDENT: He does not indicate it. The sheet is a typed copy. There are two certificates.

2116. Mr. MANNING: I believe Mr. Randall is a doctor.

2117. Mr. COOPER: There is a Dr. Randall at Kogarah.

2118. DEPUTY-PRESIDENT: There are two certificates. The second is a certificate by Wilfred White, M.B., of Kogarah, dated 1st December, 1919, in which he says: “This is to certify that Mr. Richard Constantine Browne

was suffering from multiple neuritis, which ultimately caused his death, and in my opinion the cause was lead-poisoning." On the 5th December the solicitors wrote enclosing the certificates of Dr. Wilfred J. White and Dr. Randall. The Department of Education then referred the case to the architect apparently. On the 30th January, 1920, Cecil A. Coghlan & Company intimate that unless they receive a reply within seven days they will commence proceedings for compensation.

2119. WITNESS: I would like to explain that in that case the Department of Education took the matter over without reference to the Insurance Branch and a lot of delay arose over that.

2120. DEPUTY-PRESIDENT: On the 17th February Cecil A. Coghlan & Company write to the Department of Education again, asking if they might be informed whether liability would be admitted. On the 27th January the Crown Solicitor advised on the facts as to the liability of the Department of Public Instruction. The effect of the advising is contained in this sentence:

"Seeing that Browne was suffering years ago from lead-poisoning, and that he has not been engaged upon any dangerous work which would lead to or aggravate the disease of lead-poisoning since November, 1916, the claim of the widow will have to be rejected."

On the 23rd February Cecil Coghlan & Company wrote to the Department that their instructions were to apply for an arbitration under the Workmen's Compensation Act. On the 6th March the Department of Education reported to the Treasury Insurance Board.

2121. WITNESS: Yes, and that is really the date that proper consideration of this case began. That is when we got it. All this correspondence took place before this claim got to its proper source. The Insurance Board minute of the 9th March brings you to the position where it was first taken up.

2122. DEPUTY-PRESIDENT: Yes. On the 9th March the Insurance Board records its views with regard to the claim. They state which of the Government Departments was the last employer, and record their opinion that the onus would be upon the dependents to prove the connection between the employment and the disease. The Crown Solicitor on the 10th March again advised that the real issue was narrowed down to the question whether Browne's disease was aggravated and his death accelerated through his being re-employed for one month as a painter last year. He says:

"In the present case I cannot bring myself to believe that, considering the hopeless chronic state Browne had reached, the one month's renewed work of a painter had any appreciable effect by way of accelerating his end. Of one thing I feel sure, however, and that is that this is a proper case for referring to arbitration a *bona-fide* doubtful question. There is no hostility evinced in requiring Browne's dependents to submit the case to the Court for decision."

Then an official copy of the death certificate follows, the cause of death being stated as cardiac asthenia, multiple peripheral neuritis. The doctor certifying is W. H. N. Randall, M.B., C.M.

2123. The matter then went to arbitration, did it?—No, I do not think it did. We agreed to an award.

2124. The matter went to counsel?—Yes.

2125. And counsel advised that there was no prospect whatever of successfully contesting the claim in view of an opinion expressed by Dr. Paton that it would be impossible to get two medical officers to say that the last employment was not a factor in causing death. The Crown Solicitor then advised that in view of Dr. Paton's statement as to the impossibility of obtaining

the necessary medical evidence and also of counsel's opinion, he would now advise a settlement of this matter out of Court. The Crown Solicitor was then requested by Mr. Cowie to pay the sum of £500 into Court.

2126. What is the next case?—Louis Bohm.

2127. Were there two doctors concerned in that case?—At least three. This was a very interesting case. I might say that the evidence in that case is against the man having died from lead-poisoning. That was the Board's view of the matter.

2128. The first paper is apparently a notification from Mr. Bruce, the constructor of buildings, forwarding a report and medical certificate, relating to Louis Bohm, who is suffering from plumbism?—Louis Bohm was examined both by Dr. Gibbe and by Dr. Nash a day or two before he died.

2129. On the 8th April, 1920, Dr. Nash had certified that Louis Bohm was suffering from plumbism; that his occupation was that of a house-painter; and that the leading symptoms of disease were lemon yellow colour of lips (anæmia), blue line on gum around lower teeth, weakness of muscles of both arms. On the 15th April Dr. A. E. Gibbe certifies in these terms:

"Louis Bohm appears to be suffering from plumbism. He has the blue line, colic pains, and some weakness in his arm muscles, particularly left. He is undergoing treatment and the symptoms do not seem too severe, and I should think within a month's time he should show marked improvement. He might report again for examination then."

The claimant was examined by Dr. Gibbe at the Health Department on the 5th April. On the 20th April he says:—

"From information received I understand that the workman died on Saturday last."

So that he died apparently between the 15th and 20th April.

2130. WITNESS: That case was the subject of a coroner's inquiry. I saw him a day or two before he died.

2131. DEPUTY-PRESIDENT: There was then an inquest, was there not?—Yes.

2132. DEPUTY-PRESIDENT: A magisterial inquiry was held by Herbert Richardson Clark, at Parramatta, on the 13th April, 1920, as to the cause of death of Louis Bohm. Evidence was given by Josephine Emily Dodge, who was not a medical practitioner; also Dr. John B. Nash, who stated:

On the 8th April instant a man, who gave his name as Louis Bohm, called to see me. I examined him and found him to be suffering from a chronic anæmic condition of the blood, a muscular weakness of the arms, and a blue line on the gums around the teeth; he said he was a painter, and he had suffered from lead-poisoning a great many years. He was painter at the Government Printing Office—that his principal condition was attacks of colic and weakness of late, that he was unable to follow his trade. I gave a certificate that he was suffering from chronic lead-poisoning, which was the fact. It usually takes several years for an ordinary man to get into the state he was—I did not see him again. I have heard his death described by the lady with whom he lived—it has not been sufficient to allow me to form an opinion as to the cause of death. I cannot give an opinion as to the probable cause of death.

Is it possible that he died from chronic lead-poisoning?—Anything is possible in this world.

Is it impossible that he died from chronic lead-poisoning?—I cannot answer that question. I wish the evidence given by me, "I will not say that he did not die from chronic lead-poisoning," struck out, as I am not prepared to stand by it.

Is the manner of his death described in evidence consistent with death from chronic lead-poisoning?—In my opinion, no.

Why?—Based on my experience of this man and forty years' practice.

On the material we have here can you suggest anything suspicious as to cause of death?—No.

Can you describe to me the immediate appearance before death from chronic lead-poisoning?—I have never seen a man die from chronic lead-poisoning. I am prepared to say that deceased did not die from chronic lead-poisoning.

To Mr. O'Brien: I base that opinion on similar cases. It is not probable that an accumulation of lead in the heart would cause death as described, not in an ordinary painter. I do not know of any complication from which a man would die suddenly, caused by chronic lead-poisoning.

To Mr. Spence: In my opinion this man died from something other than chronic lead-poisoning.

Then Dr. Ernest Moore McCaffrey gave evidence, and said:

On the morning of the 17th instant I was called to see Louis Bohm, the deceased, at his home, Rickard-street, Canterbury. He was dead, lying on a bed in pyjamas. I think he had been dead two or three hours. There was nothing in his appearance to cause me to think that death was due to foul play. I cannot say what the probable cause of his death was. I have heard Dr. Nash's evidence. Speaking generally, it is possible the deceased died from chronic lead-poisoning. I reported the death as I had not seen the man alive.

Then Dr. Gibbes was examined, and said:

I am Second Government Medical Officer at Sydney. On the 15th April instant I examined Louis Bohm at the Health Office, Sydney. He was suffering from symptoms of chronic lead-poisoning. The result of my examination was that he was not fit for work. His symptoms were not very severe—he would require a month to recuperate. I heard his death described in evidence. His death is inconsistent with death from chronic lead-poisoning. In my opinion, in chronic lead-poisoning certain diseases of the kidneys and other organs do arise, but for a man to be in the condition he was on the 15th instant a sudden death such as his seems practically impossible.

To Mr. Spence: Which is the greater probability, death from chronic lead-poisoning or some other natural cause?—I cannot answer the question.

The other witnesses were a labourer and a sergeant of police, and the finding of the Coroner was:

I find that the said Louis Bohm died in his home at Canterbury, on the 15th April, 1920, from chronic lead-poisoning.

Then on the 12th July, 1920, Mr. Cowie writes to the Under Secretary for Public Works, *inter alia*:

In view of the medical evidence given at the Coroner's inquest there seems to be considerable doubt as to the liability of the Government, and on submission to the Crown Solicitor he advised that the case was a very proper matter to be arbitrated upon by the Court. Consequently liability to provide the benefits of the statute has not been admitted.

Mr. Bohm was apparently a Maltese. The copy of the burial certificate shows he was born in Malta. His next-of-kin was apparently abroad. There were complications because of his nearest relatives being abroad, and eventually it was arranged that the sum of £19 5s. 6d. should be placed to the credit of the Revenue Advance Account of the Department of the Attorney-

General and of Justice, to enable the Crown Solicitor to pay the amount of taxed costs on account of Bohm's daughter.

2133. Was that it?—The children—there was one illegitimate and one legitimate child, I fancy.

2134. The claim for £500 on their account was admitted in full?—Yes.

2135. DEPUTY-PRESIDENT: And the £19 5s. 6d. had reference to costs incurred in connection with the litigation of the claim.

2136. WITNESS: The next case is a claim in connection with William Curran, an employee of the Sydney Harbour Trust, aged 59. He was examined by Dr. Nash, who gave a certificate dated 15th March, 1921, that he was suffering from lead-poisoning. None of the disablements occurred before the 4th of March. I may say that this is an open case at present—not settled. There is certain evidence here, but I do not know if the Board would want it to be published at the present time. Dr. Nash gave a certificate dated from 4th March; liability has been admitted, and compensation is being paid still on the ground of incapacity from lead-poisoning.

2137. DEPUTY-PRESIDENT: Did you say the matter is being suspended in some way?—I do not say it is now. At the present time the man is incapacitated, and under the Act full compensation is being paid, to date.

2138. Was there any difference in medical opinion in regard to his case?—There is a little, but not really relevant to our consideration.

2139. It is not relevant to your purpose?—We are admitting the payment is due.

2140. Was there an examination by different doctors?—It is a Sydney Hospital case, and we got certain evidence from there. The real features of the case begin with Dr. Nash's certificate.

2141. DEPUTY-PRESIDENT: Dr. John Campbell Lamrock gave a certificate on 19th May, 1921, as follows:—

This certifies that Mr. W. Curran is unable to carry out his usual occupation for at least one month from the present date . . .

Dr. Nash certified that Curran was suffering from lead-poisoning, and gave the symptoms as anæmia, blue line on the gums, and muscular weakness. The date of that certificate was 15th March, 1921. On the 14th June Dr. Nash wrote to Mr. Cowie to this effect:

I have examined William Gregory Curran at my rooms this morning. He still has a faint blue colour on his gum margin, which points to plumbism.

During the operation at the Sydney Hospital on the 20th April, 1921, I am informed the surgeon found him to be suffering from a cancer. This accounts for the profoundness of his anæmia, which is greater than that found in plumbism alone.

If the cancer diagnosis is correct he is not likely to live more than a few months.

2142. WITNESS: There is evidence after that, but I do not know if the Board would wish it to be published now.

2143. DEPUTY-PRESIDENT: You have no further objection to this other letter, to Dr. Nash, being disclosed?—No; but on the whole we have other evidence which does not agree with it.

2144. But you have admitted the claim?—Yes, the liability under the claim at the present time.

2145. Do you hold yourself at liberty to contest the claim?—We have that right in every case, accidents and all. If we have evidence that there is no disability resulting from an accident, we have always the right to stop payment.

2146. DEPUTY-PRESIDENT: There are two or three other medical certificates here. I am sure the other certificates will be of interest. Mr. Manning

had better read them, because I do not want to have them set out in the notes.

2147. Mr. MANNING (*after reading papers*): This morning's evidence is most important. It has a very important effect, I should think, upon the conduct of the inquiry, because Mr. Connington suggested—and I dissented to the proposition in a qualified way—that there should be examined certain men employed. But this is absolutely not settled. I mean, it knocks on the head the wisdom of having that.

2148. DEPUTY-PRESIDENT: Let us get all there is to be obtained before discussing that point.

2149. WITNESS: The last two cases are quite simple. One is that of Benjamin John Fisher, an employee of the Sydney Harbour Trust, aged 38 years. This man provided his own medical evidence, by Dr. Oxenham, dated 15th October, 1920. The certificate was: "This is to certify that John Benjamin Fisher is unfit for duty owing to lead colic." The man was away only one week, and we paid the man one week's compensation, £2, without admitting liability.

2150. DEPUTY-PRESIDENT: That case is very simple. Is it the only simple case?—Generally speaking, disease cases under Schedule 3 are more complex than the ordinary accident case.

2151. The other cases we have gone into are by no means simple?—That is six lead-poisoning cases as against 5,000 accident claims which were settled under the Act, which is a very small proportion.

2152. J. Robison was an employee of the Sydney Harbour Trust as a painter, aged 38 years; a certificate was provided by a private practitioner, Dr. Sharpe, that Robison is suffering from lead colic and should give up all work connected with lead or lead paints for some weeks?—We submitted this case to Dr. Nash, who gave a certificate, dated 18th June, 1921, to the effect that Robison was suffering from lead-poisoning, and disablement commenced on 7th June. The symptoms are stated, and the doctor adds: "His condition is temporary, but he should have other employment." There is no further evidence. We paid compensation from that date, and are still paying it. He will be re-examined by Dr. Nash shortly. As far as I have been able to scrutinise the records these are all the cases I have.

2153. Mr. WILLINGTON: Is that on your list, Mr. Connington?

2154. Mr. CONNINGTON: Yes, but it is not on Dr. Nash's list, although Robison has a certificate.

2155. WITNESS: That case was interesting to me, because on a casual view the man did not seem to be a lead subject so far as my experience goes.

2156. DEPUTY-PRESIDENT: Mr. Spence developed the opinion there must be a doubt, at least from a layman's point of view, whether a man was suffering or not from lead-poisoning. Dr. Nash says, in that connection, the leading symptoms of the disease in Robison's case were: "faint blue reflex on gums and around central teeth, accompanied by a granular condition of the gum. Below par condition of muscles of arms. Reflexes in excess. He complains of belly pains."

2157. Mr. CONNINGTON: Is there another doctor's certificate there? We wish to identify him by the name on our list.

2158. Mr. ROUTLEY: Yes, from Dr. Granville Sharpe, I think.

2159. DEPUTY-PRESIDENT: That is the man's private adviser.

2160. Mr. ROUTLEY: Your name is "Robinson," and here it is "Robison."

2161. Mr. CONNINGTON: He is on our list, but Dr. Nash has not mentioned his case.

2162. DEPUTY-PRESIDENT: Is that the last of the papers?—I have made no provision for separating lead-poisoning in our case, neither did the Labour Minister in his returns. I have gone through them in the last two or three

days to pick out the lead-poisoning cases, and as far as I can recollect there are no others. They would only be simple cases if there were.

2163. Only simple cases?—Only simple effects, not complicated effects.

2164. If there were any other cases they would not be numerous? There may be one or two?—Not more than one or two additional simple cases of brief duration.

2165. Mr. MANNING: In the fixing of these rates, I understand first of all the painters are classified under "Building"?—They have their own classification in the tariff; that is the rate of the Associated Insurance Companies.

2166. Ordinarily they would be classified under "Building" by insurance companies?—The whole thing is based on, What is the trade risk from the underwriting point of view? If the trade risk is shown complete, and if painting, blacksmithing, and other trades may be incidental to the building trade, the whole thing may be rated as complete.

2167. There is a building rate fixed at 25s.?—The building rate to-day is 30s.

2168. Where does that appear?—It appears in the tariff, the printed rate, even of the insurance companies.

2169. Is that adopted by the Treasury Insurance Branch?—No, the tariff ratings were adopted by the Board at the inception, but even at the end of the first twelve months we gave a bonus of 12½ per cent. off the premiums paid.

2170. Uniformly all round?—To all Government Departments.

2171. So it would be 32s. 6d. less the 12½ per cent.?—Whatever the rate was.

2172. If the Associated Insurance rate was 32s. 6d., then the Government rate would be that much less 12½ per cent.?—Yes. That was not actually done by reducing the rate, but by allowing a refund on the premium paid.

2173. Do you know whether or not the painters' rates was altered? Is there a separate painters' rate in the Treasury schedule?—The companies in their ratings have a separate painters' rate. Speaking from memory, I do not think that rate is applied to any Government Department in the underwriting of the risks throughout the service.

2174. It is uniform in the case of trade as far as possible?—Take the Public Works Department—they have quarrying, blasting, blacksmithing, building, and all sorts of operations, and the whole thing operates at 20 per cent.

2175. They have different flat rates for different departments?—Yes.

2176. So your classification is on the basis of the different departments rather than the different work?—On the hazard entailed in that department's operations.

2177. You will not arrive at it, I suppose, by ascertaining the average risk in that department? For instance, although there may be blacksmiths in the Public Works Department, and painters in the Lands Department, the average risk would be different?—Yes. There is nothing to be gained by a Government branch making the underwriting aspect too complicated. The only need really is that each Government Department should contribute to the central fund an annual amount or premium commensurate with its hazards and liabilities under the Act. It would not do for each department to pay into the fund, according to the number of its employees, irrespective of hazard. We must have regard to hazard, otherwise we would be expecting one department, really, to pay a proper share towards another department where the hazard is greater. We endeavour, as simply as possible, that each department shall pay such a premium, and give it such a rate to produce such a premium as is commensurate with the risk incurred in its operations.

We started with the insurance companies as a basis, but have got a long way from it since.

2178. Have you made any computation showing what the rate would be for any of the particular trades, distinct from any of the particular departments?—No, we have not.

2179. You have not analysed it?—No. I may say that in Victoria you will find they have done that very thoroughly—very thoroughly. Their figures are compiled from the insurance companies and Government companies which show the total premiums received under each classification—painters, builders, blacksmiths, and so on—also the claims paid by all insurers in the State, and at the end of the year you get the total premiums paid in each case, and the total claims paid in each case.

2180. DEPUTY-PRESIDENT: But in Victoria, as distinct from New South Wales, there is a publicly-run insurance office?—For workmen's compensation, yes.

2181. That is, the Government will insure any employer in Victoria?—Yes.

2182. Mr. ROUTLEY: And take business outside their own departments.

2183. Mr. MANNING: In fixing the departmental rate, I suppose you have before you the insurance companies' rate?—Our Board had regard to that initially, but when the risks which were recognised are found, it is not so much the original tariff rate which controls, as the experience which has intervened and the known hazards of certain of the risks.

2184. The only time the Associate Insurance rate had any effect on your ultimate position as to rate, would have been in the beginning of 1917?—Exactly.

2185. It has not affected you since?—No.

2186. I was asking these particulars by reason of what you had stated, and what I do not fully understand about the rate of 25s. for builders. You remember referring to the rate of 25s. for builders?—I believe that was the original tariff rate in 1917.

2187. Mr. CONNINGTON: I had it at 20s.

2188. Mr. MANNING: No, the witness did not say that.

2189. You said it was 25s.?—I believe it was 25s. originally, and that then it was reduced to 22s. 6d.

2190. Do not think for a moment I am tying you to a definite figure, but I want to understand something about, as a matter of fact, which it refers to, 25s. and—

2191. DEPUTY-PRESIDENT: I examined the witness upon that point. I have it all here. The rate is for builders "not otherwise classified" 25s.

2192. Mr. MANNING: At the same time as that was in operation, there was a basis of 20s. for painters?—Yes. I believe the tariff originally regarded the painters at less than the builders. I believe that was reflected in the ratings and is so reflected to-day.

2193. DEPUTY-PRESIDENT: We will have evidence with regard to the rates, Mr. Manning.

2194. WITNESS: What further evidence are you asking me to provide?

2195. DEPUTY-PRESIDENT: I will ask you to collate some information with regard to the rates. I did ask that at the beginning of your examination. Mr. Woodham will obtain an extract from the notes and hand it to you.

2196. WITNESS: I think it was as to whether we applied any particular rates against painting only. I do not think we have done it.

2197. DEPUTY-PRESIDENT: The questions will be extracted from the reporters' notes and handed to you; and if you have anything further we will be glad to have the information. Will you keep these files separate in your department, so that they may be referred to again at any time?

2198. MR. MANNING: Yes, we might want to refer to them at any time, and if they are kept separate it will save time.

2199. DEPUTY-PRESIDENT: Would you mind parcelling them up separately and keeping them in that condition for a few days?—Yes, I will do that.

(Witness retired.)

WALTER ROBERT GRAHAM, sworn, examined by the Board:—

2200. What are your degrees?—F.R.C.S., Edinburgh.

2201. You are a legally qualified practitioner under the New South Wales law?—Yes.

2202. Where do you practice?—At Ocean House, Martin-place, and 151 Macquarie-street.

2203. You have had an opportunity of gaining rather special experience in connection with insurance work, I understand?—Yes.

2204. Will you tell us what has been your experience?—I have been doing medical examinations for the insurance companies ever since the Workmen's Compensation Act became operative in Sydney, I think it was in 1910. I was doing insurance work in New Zealand from 1901 to 1906 in a similar capacity.

2205. Have you had occasion to examine claimants who based their claims upon lead-poisoning?—Yes, I have seen a good many of them during those years.

2206. In both New Zealand and New South Wales?—Yes.

2207. What has your New South Wales experience been in connection with lead?—Are you speaking generally, or as applied to any particular trade?

2208. Generally, first of all?—Speaking generally, lead-poisoning is a very common thing amongst workmen engaged in any process in which metallic lead or its salts or compounds are used in any process.

2209. And I suppose metallic lead, or its salts or compounds, is in rather general use in the manufacturing and industrial world?—Yes, very largely.

2210. Then you expect to be referred to in connection with cases of lead-poisoning coming, not from one or two or a small group of industries, but from a large range of industries?—From all classes of employment where lead is used. I also had special facilities for observing the effects of lead because of the fact that I practised for three years at Broken Hill before going to New Zealand. I had a very large experience there in those three years; I was working amongst the miners the whole time.

2211. To revert particularly to the case of the painter, have you in the course of your practice had occasion to deal with the claims of painters?—Yes, several.

2212. Have you a record at all?—I have a great many records, but was not able to get them all together. Mr. Woodham saw me yesterday and asked me to attend, but I have not had time to go through my records of the cases, although I have one or two here.

2213. The notice was very short?—Yes. I can get the Board a good many cases.

2214. In respect of what period of time could you secure a large number of cases?—I have particular records, a number of records, going back to the new Act, 1917.

2215. That is, from 1917 to date?—Yes.

2216. In that period you could collect a large number of cases of lead-poisoning?—A great many cases of lead-poisoning, other than among those engaged in painting. My experience of those cases of lead-poisoning I have had in Sydney has been in connection with many other trades as well.

2217. The claims made of lead-poisoning by painters do not represent 50 per-cent. of the cases which have passed through your hands?—Nothing like it.

2218. Would it take you long to make a computation of the lead-poisoning cases?—I have a good many thousands of records in my office.

2219. You would have to make a special analysis of your books?—Yes, I would have to do that.

2220. What is your view with regard to the risks to which painters are subjected, as to lead-poisoning?—There is considerable risk, but the principal risk that painters are exposed to is in any process of a dry nature. The greatest risk any painter has in handling white-lead, or any other form of lead, lies in the rubbing-down or burning-off of old painted materials. The wet processes are much less likely to cause trouble.

2221. And what is the method of attack?—By the respiratory organs. The dust is inhaled.

2222. So that the dust does not pass into the stomach and through the alimentary canal into the blood, but through the lungs?—Yes, in these dry processes a large proportion of the cases are produced in that way. The mucous membrane of the mouth and stomach is certainly another possible cause of poisoning, but that is much more easily avoided than when it is in dust form.

2223. What symptoms do you expect to find?—The first symptom usually complained of is lead-colic.

2224. Is there any method of distinguishing by association a patient when he is suffering from a colic which would appear to be caused by lead?—Yes, a patient will nearly always come and complain of violent pain in the stomach, and then, by examination, one will usually find he has a distinctive line in the gums; and by examination of the muscular organs and nerve tissues one will establish if the patient has been engaged in that work for a time, or exposed to lead-poisoning, for sometimes you will find accompanying symptoms which will tell you.

2225. Will you, in diagnosing cases, have regard to tests of the excreta?—Sometimes.

2226. Would you, ordinarily?—No. That is, ordinarily, laboratory detail work. There is a later condition set up by lead-poisoning very often, and that is a chronic inflammatory condition—that is, the condition of nephritis, by which you will get—

2227. My question was not intended to suggest that, although it actually did so. Would you use the scientific service of a medical practitioner who is specialising in laboratory work to assist you in making a diagnosis?—If there was any contentious matter in regard to it, but the ordinary clinical test is usually sufficient to discover lead-poisoning—that, and the condition of the patient, and his environment.

2228. If the poison were caused by a vehicle instead of the parts of the paint—if it were caused by something rather than the lead contents of the paint?—It would not be lead-poisoning.

2229. And in order to determine whether it is lead, or the emanation from the vehicle, it would be necessary to find lead in the body, would it not?—Yes; that is, in a contentious case.

2230. And you would really look for the pigmentation of the gums to find out whether lead was in the body or not?—If you had a case in which there was no pigmentation of the gums it would be very difficult to demonstrate the presence of lead in the excreta, because when you get the blue line in the gums that is one of the very sure signs. I have known men who have not been associated with lead, or working with it in any way at all, show the signs of lead colic in forty-eight hours when they do work with it. I have in mind a case where a man was working over some

process where lead was being smelted, and he developed it in forty-eight hours; and he later had the blue line deposited in his gums. It is a thing one would not expect. It was ingested through the respiratory organs, carried with the blood through the system, and deposited in a blue line along the gums. There was reason to suppose, then, he had been associated with lead.

2231. Is there any work done at the request of the insurance companies, in the main, or of the individual?—By the employer, very largely.

2232. Can you mention the names of the insurance companies on whose account you have been examining men?—The Law Union Company; the State Company; the Federal Mutual Company, Manufacturers' Company, Perdriau's Rubber Company, from whom there have been several cases; the Federal Mutual Companies (Bakewell's Potteries); The Manufacturers Mutual Company (Accumulators, Limited)—those occur to my mind at the moment.

2233. About how many cases of lead-poisoning would you handle in the period of a year approximately?—I daresay that during the last twelve months I have handled twenty or thirty.

2234. And something less than half of those cases would be painters?—There would not be one-third of them painters. I think there have been at least five cases of those from Accumulators, Limited, two cases from Perdriau's, while there have been two cases from Bakewell's Potteries.

2235. It would not be going too far to suggest you handle six to nine cases of painters per annum?—I should think that is probably correct.

2236. Mr. MANNING: I understood the figures you gave were from twelve to thirteen cases in the twelve months?—No, from twenty to thirty; and I think about one-third of those would be painters.

2237. DEPUTY-PRESIDENT: Your experience is very interesting to us, and if you can reasonably make your information a little more explicit by basing it upon computations from your records, it will be extremely valuable?—I will get someone on to the records, to go through them. It will take some time to do it.

2238. How long would it take you to finish the work?—I would have probably to go through 20,000 records during that time, to get the cases. I can get hold of a dozen cases during the last twelve months pretty quickly.

2239. Will you make an estimate of the cost to which you would be put to have extracts made?—It would not cost the Board anything; I can put the girl in my office on to the work.

2240. You would be doing a public service if you can give the information on those terms?—I shall be delighted to do it.

2241. DEPUTY-PRESIDENT: We appreciate your courtesy; we will leave it to you to do what you can in that way.

2242. Mr. CONNINGTON: You said about one-third of the cases are painters?—Yes, I should think so.

2243. And you subscribe to the view that once a man has suffered from lead-poisoning—a painter—he should leave that occupation?—Not necessarily. A man that has once been infected—I will not say infected, but once poisoned—it is not necessary he should altogether leave that occupation and go into some other work, because I consider if any worker in lead takes ordinary hygienic care in regard to himself the risk of lead-poisoning can be reduced to a minimum, except in those cases in which an individual shows a personal idiosyncrasy to the action of lead.

2244. Once a man is infected with lead-poisoning through whatever cause, do you suggest he may, by adopting certain methods, continue at his trade after recovery, without any risk?—Yes, I do.

2245. The general theory is that he should leave the trade, but you do not subscribe to that?—I do not say that.

2246. Mr. MANNING: Do not say that, Mr. Connington, because the witness whom you called—Dr. Nash—although he said so, by his certificate shows he is evidently not of that opinion.

2247. Mr. CONNINGTON: You are not of opinion that it necessarily follows a man should leave the calling?—No. We generally advise a man once affected with lead, if he possibly can, to secure some other form of employment, which is to his advantage; but if he must persist in the work, he must take—

2248. Mr. MANNING: I suppose that is because he is predisposed to the poison?—A man once poisoned is predisposed to a further attack.

2249. Mr. CONNINGTON: What do you suggest as to care?—Particularly with regard to his food. Any particles of lead about his lips or his moustache (a painter should not wear a moustache) should be carefully removed before any food or drink is taken by him. The hands should be scrupulously scrubbed. Any food taken in the kit-bag for the midday meal should be eaten without being touched by his hands at all, even after his hands have been thoroughly cleaned. Any man working on dry processes—rubbing-down, or using the lamp to burn off lead—should, where dust is material, use a respirator. I am perfectly sure if that hygienic care were taken the number of people poisoned by lead in that trade—painting—would be reduced to a minimum. Among painters there will always be cases of lead-poisoning, as amongst other lead-workers, because some people show much greater tendency always to the effect of the poison than others.

2250. Mr. CONNINGTON: This is an extract from the Australian Painters—

2251. Mr. MANNING: But you cannot quote from that.

2252. DEPUTY-PRESIDENT: Perhaps if you were to ask the witness if he were aware of the opinions expressed by Dr. Legge, he might be able to help you.

2253. Mr. CONNINGTON: Dr. Legge is a well-known factory medical officer of Great Britain?—Yes, I have seen some of his stuff at Home. The authorities that are mostly quoted in the last twenty years are Dr. Legge, Dr. Oliver, and Mr. Goadby. They have been engaged in this work in the different commissions and inquiries in England.

2254. DEPUTY-PRESIDENT: Are you familiar with the literature on the subject?—I have not gone into it carefully. I am speaking of my general knowledge.

2255. Mr. CONNINGTON: Dr. Thomas Oliver is a recognised authority on the subject, is he not?—Yes.

2256. Mr. MANNING: I do not want to hinder my friend in any way, but he might save a good deal of trouble if the book is produced, because his quotation might possibly be inaccurate, and if it goes down on the notes not accurate, it is confusing. It is 100 to 1 that the extracts are accurate; still, they may not be, and probably it may cause confusion.

2257. Mr. CONNINGTON: I have not put in the book, for obvious reasons.

2258. DEPUTY-PRESIDENT: Perhaps the witness is familiar with the book you are quoting from now?—No, I cannot say I have seen it.

2259. Mr. CONNINGTON: I have put in a document for reference. It is marked "A." On the second page, three-parts down, you will notice where it begins—

2260. Mr. MANNING: This should not go down in the notes at present.

2261. Mr. CONNINGTON: If it is necessary I will swear that the document here is in strict accord with the article the quotation comes from.

2262. Mr. MANNING: But the point is, it may be inaccurate.

2263. DEPUTY-PRESIDENT: The trouble is this, Mr. Connington: If you are quoting a law report you quote it actually from the book, do you not?

2264. Mr. CONNINGTON: Very well; I will find the passage in the book itself.

2265. DEPUTY-PRESIDENT: A medical book in this inquiry is on all-fours with a law book in litigation.

2266. Mr. CONNINGTON: The idea of extracting the quotations from the book was to place the information in the hands of all the members of the Board, and Mr. Manning, and for the purpose of expedition.

2267. Mr. MANNING: We realise that; but I am only pointing to the possibility of error.

2268. Mr. CONNINGTON: The doctor will soon know whether I was inaccurately quoting some remark by a doctor on a subject so well known as lead-poisoning.

2269. DEPUTY-PRESIDENT: He can hardly say whether or not the quotation is correct.

2270. Mr. CONNINGTON: I will read from the book itself. You might check the quotation, and see if it is accurate.

"When the coats of paint have become dry the workman is obliged to use sand-paper to rub the surface flat. In doing this a considerable amount of dust is given off, which is rich in white-lead."

2271. WITNESS: That is the most dangerous occupation, in my opinion.

2272. Mr. CONNINGTON: The book goes on:

"It is inhalation of this dust that so frequently induces colic and paralysis of the hands in house-painters. Carelessness and ignorance are frequently contributing causes. Men, while laying on the white paint with a flat knife, have often been observed using the hollow of their left hand as a reservoir for the paint. If there is any erosion of the skin, absorption of the poison is sure to follow."

2273. WITNESS: I do not agree with that.

2274. Mr. CONNINGTON: It further says:

"Layers-on are an unhealthy class of men. In Paris alone there occurred eighteen deaths during the years 1898-9 in a small union of 200 members, the greatest age at death being 35 years."

2275. DEPUTY-PRESIDENT: Does that conclude the extract?

2276. Mr. CONNINGTON: That is all I wish to refer to. It is in Dr. Oliver's work, "Dangerous Trades," at page 336.

2277. You say that cleanliness might minimise the risk considerably?—That is so.

2278. You do not suggest, I suppose, it will altogether eliminate the risk attached to working with lead paint?—You can not altogether eliminate it.

2279. Mr. MANNING: I would like to ask the witness for some information on certain points. I think I would be in a better position to do it when Dr. Graham has produced the records he spoke of. I would rather wait until then, if I might.

2280. DEPUTY-PRESIDENT: Our main requirement is in the nature of statistics of the disease. When we get the information Dr. Graham can give us, showing his experience in a definite number of cases derived from specific sources, we will be in a very much better position to discuss the gravity of the matter than we are in at the present time.

2281. Mr. MANNING: That is what occurs to me, and that is why I would like to refrain from asking Dr. Graham questions until he has had an opportunity of going through the records and fortifying himself with complete information. Then, certainly, there are some questions I would like to put to the doctor.

2282. DEPUTY-PRESIDENT: Thank you very much for attending here to-day, Dr. Graham. We will be glad indeed to hear further from you.

2283. WITNESS: I can get the information for the past twelve months by Monday. I will go back, if I can, to the beginning of 1917.

(Witness retired.)

EDWARD SUTHERLAND STOKES, sworn, examined by the Board:—

2284. What are your degrees?—Batchelor of Medicine, Sydney University.

2285. I understand you have been associated for some time with the Water and Sewerage Board?—I have been medical officer there for the last seventeen years.

2286. The Water and Sewerage Board is a Government instrumentality and a great employer?—Yes.

2287. Can you give us some idea of the number of men employed by that Board?—On 1st April last the number of workmen employed by the Board was 1692. That is apart from the office, the administrative and engineering staffs, which consist of 611.

2288. So the total number of employers would be 2,303?—Yes.

2289. Is the health of the whole of the group of employees under your care and supervision?—Every man who is away sick is seen by myself.

2290. While he is sick, or upon his return to work?—During his absence.

2291. You call at the place where he lives?—Or he reports to me personally, if able. He is seen by me during his absence, and no sick leave is granted by the Board without my recommendation.

2292. On a certificate practically issued by yourself?—Yes.

2293. What has been the average number, approximately, of employees during the past four or five years;—would it be higher or lower than 2,303?—I think that would represent about the average number. Of course, the actual number of workmen employed fluctuates with the amount of money the Board is spending, and also with such conditions as day-labour or contract work. At times the majority of the work may be carried out by contract, and therefore the direct employees of the Board would be fewer in number. At other times it may be that the majority of the work is being carried out by day-labour, and the number of employees would be correspondingly increased.

2294. May we assume the work of the Board is, in the main, engineering work?—Yes.

2295. Is there a certain amount of building and construction work done by the Board?—Engineering, and you may include maintenance and engineering works.

2296. Is paint used to a large extent in connection with the work of the Board?—Yes, there is a considerable amount of paint used.

2297. And is there a large group of painters, professional or trade painters, in the employ of the Board?—On the 1st April, when this list was compiled, I find we were employing five painters.

2298. Out of 2,303 men, only five were painters?—Yes, five only were painters. There were other men employed in painting, if I may explain. There was a group of twenty-one men who were employed in work described as “scraping, cleaning, stripping, painting, lime-washing, and cement-washing, metal-work in connection with trunk mains, viaducts, bridges, reservoirs, and tanks.” Those are the exact words of the awards under which these men are classified.

2299. So that men who are engaged in any operation relating in any way to the work of painting would number twenty-six altogether?—Yes. In addition, at times, there would probably be other painters engaged as casual hands. For instance, if it were decided to do such an extensive work as

painting a big trunk main, then probably the Board may put on from twenty to thirty special men.

2300. That would be a water main?—Or big sewer viaducts. These other men are employed in ordinary maintenance work and are permanent hands. There may be other casual hands, if the work requires them.

2301. Can you indicate approximately what number of casual men would be employed throughout the period of the war?—No, I could not get any figures as to that. There is a very fluctuating number; it depends entirely upon the work the Board has.

2302. Can you indicate whether or not casual painters would be large or small in number;—would it be a group of small dimensions or of large dimensions?—From the inquiries I have made to-day I have ascertained if the work was a large one there might be a group of twenty or thirty men put on by the Board.

2303. MR. MANNING: Another thing would be the frequency with which they are employed during the year.

2304. DEPUTY-PRESIDENT: Yes, the size of the group, the length of the job, and the number of jobs in the year. Can you throw any light on those particular points?—No, it is casual work. The men are employed for a month or two, until the work is over—then we do not see them again.

2305. MR. WILLINGTON: Those twenty-six men would come into touch with lead in some form or other?—Yes, they are all in touch with lead.

2306. DEPUTY-PRESIDENT: Are you consulted with regard to the health conditions that are likely to be produced by the use of materials of a certain class?—I would be, if there were any special occasion.

2307. Have you been consulted by the Board with reference to the use of paints containing carbonate of lead?—No.

2308. Do you think the assumption can be made that the Board ordinarily uses a paint with a lead base?—Yes. The ordinary paints are used—the lead base paints, and a certain amount of lead sulphate we also use.

2309. Can you tell us what has been your medical experience with the twenty-six men who are employed by the Board as you have indicated?—None of those men have ever reported to me with any sickness which can be reasonably supposed to be attributable to lead. I have never seen a case of lead-poisoning.

2310. What period of time are you speaking of?—The whole time I have been with the Board, seventeen years. I cannot call to mind one case of lead-poisoning amongst these men in that time. I have some very faint recollections of one man who complained of lead a good many years ago, but I cannot find his record. I cannot locate him at the present time. I do not even remember his name.

2311. When you say you cannot locate his record, do you intend to indicate to the Board that every illness is reported in writing?—I have a record of every man who has been to me.

2312. And the record is ordinarily preserved amongst the papers of the Board?—Amongst my own papers; they would not be amongst the papers of the Board.

2313. But amongst your papers as an officer of the Board?—Yes.

2314. Are those records kept in such a form as to enable you to search them for information upon a particular point with comparative ease?—I would have to go through several thousand card records.

2315. And medical information as collated by you is not tabulated?—No, it is not tabulated.

2316. And for the purposes of this inquiry have you reviewed a large number of records?—No, I have not had time.

2317. You are depending upon your recollection?—Yes, I am, and I have

no recollection, beyond one very vague case a good many years ago, of any lead at all amongst the Board's employees.

2318. What work would the man who may have been a case of lead-poisoning have been associated with?—I could not even say that. I recollect one man coming and saying he was leaded, but I am doubtful whether he was or not. That case may have occurred ten or twelve years ago.

2319. The occurrence of a case of lead-poisoning would be a matter of such distinction in your mind that you would not be likely to forget it?—Certainly not. I shall be looking through all my records within the next few weeks compiling certain statistics for the year.

2320. Should you light upon any case which would indicate lead, will you inform the Secretary of the Board and enable us to have you here again?—Certainly, should I come across any.

2321. You have spoken, I take it, more particularly with regard to the men who are engaged as painters and in this work which may be associated with painting?—Yes.

2322. Have you seen signs of lead-poisoning amongst any of the 2,000 employees of the Board at any time?—No. We have also employed about twenty plumbers.

2323. Have you seen signs of lead-poisoning among them?—No. As far as my memory goes, I have not seen any case of lead-poisoning at all beyond this doubtful case, amongst the employees of the Board.

2324. Will you endeavour to give me an answer to this question: Have you noticed that there is a tendency to minor ailments on the part of painters and those associated with painting work, to a greater degree than men not associated with that work, speaking always of the Board's employees?—No, I have not noted that.

2325. Do you study the question of absenteeism for administrative purposes?—That would involve the classification of trade employees as to different groups? No, I have not done that.

2326. Have you any reason to suppose a painter and his assistant, and men of these classes which are associated with you by painting, are more likely to lose work than men following other occupations, in a broad sense?—No, I have not noted that. If men of any particular group were losing time, I should notice it.

2327. MR. CONNINGTON: There are only five here?—Yes, only five painters.

2328. DEPUTY-PRESIDENT: There are five tradesmen?—Yes, continually employed in painting.

2329. DEPUTY-PRESIDENT: There are twenty-one men who may be very closely associated with the work of painting.

2330. MR. CONNINGTON: Have you any record of the different diseases that affect the employees? Can you say how many have suffered from influenza, or an accident, while at their work; and how many have been laid up with many diseases which doctors are well acquainted with?—The only classification I make is between absences due to illness and absences due to accident.

2331. And the claim is on a different basis in each case, is it not? The men away through accident get one payment?—A man gets paid according to the Act.

2332. And if through sickness, according to your regulations?—Certain groups of men are paid sick pay. When I say certain "groups," men on a certain classification. The permanent hands receive sick pay.

2333. And the other men?—The casuals do not. They would get accident pay, not sick pay.

2334. You keep a record showing the men who are allowed pay through sickness—permanent men. You do not keep any record of sickness amongst the casual men?—Yes, I do. All employees of the Board, casual or perma-

ment, have to come to me before they return to work. If a casual hand is away for a few days, or a week, he has to be seen by me before being put on the job again.

2335. And you certify he is fit to start work?—He is not permitted to resume until I certify he is fit.

2336. He does not see you when he is going off? The casual hand never sees you until he returns?—Yes, he does. The man's absence is reported to me. I may visit him, or he may come and see me, but he has to be seen by me before he returns to work.

2337. Say a casual hand is off to-day, ill, say, through influenza: has he to notify you when he is off through influenza?—No, he does not inform me, but it is reported to me by his senior officer.

2338. If he is away sick?—That is so.

2339. Do you visit him to ascertain?—I may, or I may not.

2340. Do you as a rule visit him?—As a rule I do not.

2341. If that man made up his mind not to return to work, you would probably never see him. It is only if he makes application for re-employment that he is brought under your notice at all, is it not?—If he does not intend to return to work, he will draw his pay. The ganger will then know he has finished.

2342. That is obvious. What I want to know is this: a casual employee may be away, suffering from illness, and you would know nothing whatever about his case. Have you not said so?—No, I have not. I do not admit that as a general thing.

2343. I thought you told us that a casual man does not get paid for time off through sickness?—That is so.

2344. When he wishes to return to his job he has first to get a certificate or be examined by you?—Yes.

2345. Unless he reapplies for his job, there is no occasion for him to see you, or for you to see him, is there?—Unless he is drawing his pay I may see him, or his paper is with me and I must see him.

2346. And if he draws his pay?—He is finished with.

2347. And unless he wishes to return he does not see you and you do not see him. Is not that obvious?—No; until he draws his pay and is finished with his case is still before me, and if that man has not shown up within a reasonable time I may go and visit him and find out what it is all about.

2348. If he is a casual?—Yes.

2349. Is it your rule to visit these men?—It depends upon circumstances. I have no absolute fixed rule about it.

2350. What purpose can be served, from the standpoint of the Board, through your visiting him?—Because when men have come back we have had claims put in for illness caused by the nature of their work. They would not come near me, and when they came back they would make claim for an allowance through illness due to the nature of their work. Therefore, I got instructions that I had to see these casualse. I keep in touch with them, either by seeing them personally or, if I get information from the ganger, and I know it is a genuine case of a man who will probably be back in a week or ten days, I wait until he reports.

2351. Do you keep a record of the number of casualse you have visited who have been away through illness? Do you keep a record of the particulars of the cases, and the trouble the men were affected with?—Yes, I have records of every employee, casual or not, who has seen me or whom I have visited.

2352. Can you supply that record, if necessary?—Yes.

2353. You have five painters, have you not?—Yes.

2354. How long would you say they have been in the employ of the Board?—I cannot give you that information. It can be obtained, but I cannot give it to you.

2355. At present you do not know if they have been there a week or any other period?—That is right.

2356. As a matter of fact, you do not know the painters?—No, I could not give you their names.

2357. Of the twenty-one men, you do not know who they are or how long they have been at the job?—I cannot say.

2358. Can you say how many of them, or the twenty-one as a class, are engaged in scraping or handling paint?—No, I cannot.

2359. Can you say definitely zinc oxide is not used by the Metropolitan Board very largely?—I could not say it is not used very largely.

2360. As a matter of fact, whether they use zinc oxide or lead paints, or any other substitute, that is not your business, and you know nothing about it?—Well, I do not say I know nothing about it, because a good many of the paints are sent to me for examination, analysis, &c.

2361. Do you keep any record of the analyses made by you—can we see it?—Records are kept of every analysis made.

2362. When do you make a list of the analyses relative to some brand or quality of paint?—I could not say that, because paints are frequently being analysed.

2363. What happens is this: the employees have to get your certificate before they are allowed any sick benefits by the Board?—They have to get my certificate before any sick leave is granted—they have to get my recommendation.

2364. Before they are recommended for sick leave?—No, I do not recommend that. If a man is away sick he is not granted sick leave unless I recommend it. He is absent without leave; his continuity of employment is broken.

2365. If a man is passing through sickness do you not always make a recommendation for sick pay?—I do not make any recommendation for sick pay at all. I only make recommendation to cover his leave.

2366. What is the difference? Are you not employed to ascertain whether an employee is ill or shamming?—If he were shamming I would not recommend sick leave.

2367. Is it not obvious where you think a man is shamming you do not recommend anything at all?—I recommend he should not be granted sick leave.

2368. DEPUTY-PRESIDENT: Who can we call from the Water and Sewerage Board to testify to the weight of paint used per annum?—The Controller of Stores, Mr. Bagnall.

2369. Will you see him to-day?—Yes, I can make a point of seeing him this afternoon.

2370. Will you explain to him we propose to call him for the purpose of ascertaining how much lead paint is used on the average by the Water and Sewerage Board, over a period?—Very well.

2371. You have some figures. If they are not private may I read them to see if you should be called again in respect of them later?—Yes. They comprise a list of the employees subdivided into various occupations.

(Witness retired.)

(The Board adjourned at this stage until 2 p.m.)

(Upon resuming):

LESLIE RICHARD WELDON, sworn, examined by the Board:—

2372. DEPUTY-PRESIDENT: What is your occupation?—Manager of the Manufacturers' and Mutual Insurance, Limited.

2373. That is an ordinary commercial insurance company?—It is different to the ordinary insurance company inasmuch as we pay bonuses back to our policy-holders, and the other companies do not.

2374. Your purpose, therefore, is to cover and indemnify proprietors against the claims that may be made against them under the Workmen's Compensation Act?—Yes.

2375. And other acts as well?—Not common law, as to injuries to workmen.

2376. How long have you held your present position?—Since the company started seven years ago. All my business life has been in this profession.

2377. You have had a life-long experience in insurance work?—Yes.

2378. Your society insures other people than its members—it is not only co-operative?—We deal mainly with manufacturers. We do not go out into the ordinary business. We started with the object of indemnifying and providing insurance for manufacturers as near to cost price as possible.

2379. Do you take business from persons not associated with the company? Will you insure a person who is not a shareholder?—Yes.

2380. So your business is not confined to the protection of the interests of those who are associated with your company?—Well, not altogether. Our object was to provide for manufacturers on the co-operative principle. The shares of the company were very small and the dividend limited; it was just to provide something as a basis to work upon.

2381. Is there a co-operative element in your constitution?—We say to the policy-holders, "Pay to us the same premium as the underwriters ask you to pay and at the end of the year we will divide the profits amongst you." After payment to the shareholders there is a dividend of 10 per cent., and we provide the necessary reserves.

2382. Is the business of your company extensive at the present time?—I think we do as large a business as any company in Sydney in this class of business, excluding, of course, the premiums on mining and other hazardous risks which we do not underwrite.

2383. Are you members of the Accident Underwriters' Association?—No.

2384. You are perfectly independent in your methods?—Yes.

2385. And independent in your rules?—We say to the policy-holders, "We will charge you the same rates as the underwriters charge you," and owing to our low methods of conducting business we are able to do it at a less expensive ratio than the underwriters, and the policy-holders get the benefit of it.

2386. That is, the expense is mitigated by the return of bonuses to the persons who insure with you?—Yes.

2387. With regard to the occupation of painters, can you tell us what has been the experience of your company over a series of years, or since the Workmen's Compensation Act of 1916 came into operation?—We have very little experience of painters for the reason that they do not come within the category of manufacturers, and we do not seek their business. We have experience of paint manufacturers.

2388. Do you not protect a manufacturer in respect of his maintenance staff?—Yes.

2389. If a factory maintains painters for repair and general maintenance work, you will protect them in respect of claims made by those persons?—Yes.

2390. But ordinarily you do not insure master builders and persons of that type against the claims of painters?—No.

2391. What has been your experience in the limited area of your operations?—Our experience with paint manufacturers has been very good. We have paid one claim.

2392. In the whole seven years?—Listening to the evidence this morning I saw what the Board wanted, and during the luncheon hour I had turned up all our paint manufacturers, and looked to find out the claims for

lead-poisoning, and I could not find one. Our trouble with lead has been in regard to printers. We have had claims from printers, and people like Perdriau's, who have some lead work—they have had one or two claims.

2393. That is, the processes known to you, as the result of your experience, as being dangerous, because of the men being in contact with lead, are processes not connected with the manufacture of paints?—That is so.

2394. Can you indicate the other processes?—We had one striking incident, and that was the Accumulators, Limited, Dr. Graham mentioned to you this morning. They make electrical accumulators, and we were having a rather long run of lead-poisoning cases, so I asked our doctor to go along and report to me about the factory.

2395. Was that Dr. Graham?—Yes. He went there and suggested certain alterations to the factory. We told our clients if they liked to carry out those alterations we would continue their insurance, otherwise we could not stand up to them at the rate we were charging. They carried the suggestions out, and from that day to this we have not had another claim.

2396. How long is it since you recommended the alterations?—Roughly speaking, about eight months.

2397. Is it not a matter of common knowledge that the manufacture of electric accumulators is a dangerous trade because of the exposure of the operatives to lead?—Yes.

2398. Is there any other process you can mention?—No; I must say my experience—

2399. You have mentioned compositors (linotype operators, in the main, I take it) and the manufacturers of electrical accumulators. I was wondering whether perhaps you might add to those any other trade or manufacturing process which was equally dangerous?—I must say our experience has been rather good with regard to lead-poisoning. The only cases of men who have had lead-poisoning were in the printing trades. We had to pay a claim there.

2400. How many paint manufacturers are there amongst the people insured by you?—I suppose we have about 60 per cent. of them—Major Brothers, Taubman's, and the Standard Paint Company, and the Sterling Varnish Company. We have lately taken over Lewis Berger's business, but we have not had the experience of that firm yet.

2401. They are both lead corrodors and paint manufacturers, are they not?—Yes.

2402. The others mentioned by you are not lead corrodors—they are lead mixers only?—They are generally described as paint manufacturers.

2403. And you think the persons who are insured by you represent about 60 per cent. of the paint-making interests of the State?—Yes, I should say so.

2404. Can you give any information as to the number of employees connected with the businesses of these firms?—No. This has been very short notice. I only got it yesterday afternoon, and have not been able to go into the question very minutely.

2405. Would it be possible to collate that information for our purposes?—Yes, I will proceed to do so.

2406. Mr. CONNINGTON: The Master Painters are not affiliated with your association?—No.

2407. Of the manufacturers who constitute your association, do any of them employ painters as regular employees?—Oh, I should say they would. We do the business of people like William Arnott's, Limited, and Wunderlich's, and so on, and they have more or less a constructive staff.

2408. I want to know whether any of your members employ painters as regular hands?—Yes.

2409. Which of them?—I cannot tell you from memory, but I know Mauri Brothers and Thompson employ painters.

2410. Regular painters?—Yes, as far as my knowledge serves me.

2411. DEPUTY-PRESIDENT: Do you cover any motor-body manufacturers?—Yes.

2412. And vehicle-makers?—Yes

2413. Coach and cart makers?—Yes, people like the Meadowbank Manufacturing Company, who manufacture motor bodies. They have a big painting staff. I think you will find Mauri Brothers and Thompson have a fair wage-roll of painters.

2414. Who are the biggest body of motor-body manufacturers?—Steenbohms, I think.

2415. Mr. CONNINGTON: Mauri Brothers may have some carriage painters?—They do not have them. They are big engineers, and when they make a large iron vessel they will have men to paint it—the same thing with a boiler.

2416. DEPUTY-PRESIDENT: You see, Mr. Connington, all of the factory work, all the painting done in factories, represents a considerable portion of the painting work of the State. The two great sections of painting work are: the section relating to the painting of buildings and the section relating to the painting of manufactured articles.

2417. Mr. CONNINGTON: The information I am trying to get from the witness is this: the master painters, I am informed, do practically all of the painting.

2418. DEPUTY-PRESIDENT: Not the painting of manufactured articles, surely? They do all the painting of buildings.

2419. Mr. CONNINGTON: That is the point I am making—the man who does the painting of the buildings would not be an employee of the manufacturer.

2420. WITNESS: That is so. If they wanted to paint a building they would let a contract for it.

2421. DEPUTY-PRESIDENT: You must not lose sight of the fact that there is a vast amount of paint spread over manufactured articles.

2422. Mr. CONNINGTON: I am quite sure of that. I am not trying to hide that fact. The point I really feel sure of without asking the witness is this: the men who paint boilers, engines, and parts of machinery are general labourers. They would not be designated painters in the real—

2423. DEPUTY-PRESIDENT: Would you call motor-body painters and painters connected with the manufacture of vehicles generally labourers?

2424. Mr. CONNINGTON: They are coach-painters. I am referring to men employed in the painting of machinery, boilers, engines, &c.

2425. DEPUTY-PRESIDENT: It has been suggested to me that the real painter is to be found on the vehicle and not on the house.

2426. Mr. CONNINGTON: We are not suggesting from the standpoint of skill there is anything between us. But a distinction can be drawn between the man who paints toys and the man who paints boilers, harvesting machinery, and so on. That is fairly obvious.

2427. What I want to get from you is that the great bulk of house and decorative painting would be done by painters who are not employees of your people?—Yes.

2428. In your books, so far as the general manufacturers—not coach-builders—are concerned, such as merchants, the employees would not be designated painters. Would they not come under the designation of labourers?—As to some of the large employers we dissect the employees into the rate shown in the underwriters' books. Certain men will be doing one class and others another class, so we cut the rate down as low as we can for the employer paying us the premium. The painters will be so much, the

blacksmith so much, and so on. Some of the larger industrial firms have their schedule of painters on the list.

2429. They employ painters on their staff?—Yes.

2429A. But generally the awards in the iron trades and agricultural section would tell them——

2430. DEPUTY-PRESIDENT: You might ask the witness about the ship-builders.

2431. MR. CONNINGTON: Are any of the shipbuilders members of your association?—Yes, Drakes and W. M. Ford.

2432. Are they not shipping repairers?—We describe them as “boat-builders.”

2433. They make small boats, and very few; are they not mostly repairers?

2434. DEPUTY-PRESIDENT: What about Mort’s Dock?—They carry their own insurance; they do not insure with anybody.

2435. MR. CONNINGTON: As far as you can remember you have had no calls on account of lead-poisoning amongst the employees?—Of paint manufacturers, no.

2436. Have you had any cases with other manufacturers?—No. Our experience of lead-poisoning has been very good. The only heavy claims we have had to pay have been with printers.

2437. Have you had to pay some heavy claims with printers?—Yes.

2438. Have you paid any at all to private firms on account of lead-poisoning?—So far as my memory serves me we have been distinctly free from lead-poisoning claims. They have not been troublesome enough for me to notice them.

2439. But there may have been some?—Yes, that is right.

2440. MR. CONNINGTON: I quite see your point, Mr. Deputy-President, but I wanted to make it clear it is not house-painting that would come under the jurisdiction of the witness.

2441. WITNESS: We have very little experience with that.

2442. DEPUTY-PRESIDENT: Would enterprises like the Sydney Ferries, Ltd., be entitled to insure with you?—Yes. They have their own engineers and come under the heading of manufacturers.

2443. Are they, in fact, insured with you?—No, they are not.

(Witness retired.)

DEPUTY-PRESIDENT: Mr. Aucher will be interposed at this moment because of the absence of another witness who would have continued the line of evidence we have been taking to-day. Mr. Aucher is the librarian to whom I referred a day or two ago.

ARTHUR CONSTANT AUCHER, sworn, examined by Board:—

2444. DEPUTY-PRESIDENT: What are you?—Librarian and translator of foreign documents to the Board of Trade.

2445. You have engaged yourself in some research, at my request, in the last few days?—I have.

2446. Will you tell the Board what was the result of your work?—In the first instance I found an Act promulgated by the French Government on the 22nd July, 1909, against the use of white-lead, of which I have a translation here. This translation I compared with the official text issued by the French Government, which is in the hands of the Consul-General of France.

2447. Where did you find the translation?—In the Bulletin of the International Labour Office.

2448. DEPUTY-PRESIDENT: The book to which the witness makes reference is vol. 4 of the Bulletin of the International Labour Office, published in London by the Labour Representation Printing and Publishing Company, Limited.

2449. Mr. CONNINGTON: I think we have supplied you with that law, have we not?

2450. DEPUTY-PRESIDENT: Yes. We are getting it now in a more or less official form. The page of the book is 301. The book purports to give the text of the Act of 20th July, 1909, relating to the use of white-lead in processes of painting carried on inside and outside a building. The Act is a short one of five sections. Its terms are:

1. In workshops, yards, or buildings in course of construction or under repair, and generally in all places where the work of house-painters is carried on, contractors, directors, and managers shall be bound, without regard to the rules laid down by the Act of 12th July, 1893, in respect of the health and safety of work-people, to conform to the following provisions:—

2. At the end of the fifth year following the publication of this Act, the use of white-lead, of plumbiferous linseed oil, and of all specialised products containing white-lead, shall not be allowed in any painting process, of whatsoever kind, executed by working painters, whether inside or outside buildings.

3. A public administrative regulation issued upon the advice of the Consultative Committee of Arts and Manufactures, and of the Industrial Health Committee, shall, if necessary, indicate the special processes for which exceptions to the above provisions may be granted.

4. The inspectors of labour shall be responsible for enforcing the execution of this Act. To this end they shall have the right of entry into all the places enumerated in section 1. Notwithstanding, in cases where painting processes are being carried on in inhabited houses, the inspectors may not enter such houses until they have first received authority from the occupiers.

5. Subsections 1 and 3, 9 and 12 of the Act of 12th June, 1893, shall apply for the purpose of proving breaches of the law contemplated under this Act and securing the penalties attached to such offences.

2451. Mr. MANNING: Is that the whole Act?

2452. DEPUTY-PRESIDENT: Yes, that is the whole of the Act.

2453. Mr. MANNING: I think Mr. Aucher said he had the text of the Act.

2454. DEPUTY-PRESIDENT: No, he verified that translation with the text of the Act, which he found in the code at the Consul's office.

2455. WITNESS: That is so.

2456. Mr. MANNING: I suppose Mr. Aucher has not a copy there?

2457. DEPUTY-PRESIDENT: No. Unfortunately, the Consul will not allow the code out of his possession.

2458. You pursued your inquiries as to whether there had been any amendment or repeal of that law. What did you find?—I found that on the 1st October, 1913, a decree was issued by the Minister for Labour regarding the regulations applying to the Act passed in July, 1909.

2459. Have you the decree there?—Yes. I tender the official gazette issued by the Minister for Works in French. I also tender the translation which I compared, and it is absolutely correct.

2460. In this case you have the official bulletin of the Minister for Labour of France, published in the French language?—Yes.

2461. DEPUTY-PRESIDENT: The book I refer to is the *Bulletin du Ministère du Travail*, vol. 20, year 1913, page 92 with an asterisk.

2462. You found the translation of that decree in vol. 9 of the bulletin of the International Labour Office, which is another volume of the series to which the first volume you put in evidence belongs?—Yes.

2463. DEPUTY-PRESIDENT: The terms of this decree are not long. They appear at page 69 of vol. 9 of the Bulletin of the International Labour Office, and I will read them in their translated form:

1. In painting work the principals of the works, directors or managers, are bound, apart from the general measures prescribed by decree of 10th July, 1913, to take the special measures of protection and hygiene set out in the following sections.

2. Whenever the use of white-lead is not prohibited, in virtue of sections 78-80 of Book II of the Labour Code, it shall only be used in the form of a paste.

3. No preparations of a white-lead basis shall be applied directly by hand in painting work.

4. Dry-scraping and pummicing of white-lead is prohibited.

5. In scraping and pummicing work and generally in all white-lead painting work, the heads of industrial concerns shall place at the disposal of their workers overalls to be exclusively used during the work.

They shall see that the said garments are kept in good condition and frequently washed.

The articles necessary for cleanliness shall be placed at the disposal of the workers on the work-place itself.

The appliances and tools shall be kept in a perfectly clean condition. They shall be cleansed without dry-scraping.

6. The principals of the works, directors, or managers shall be bound to post up in the rooms in which workers are taken on and paid the following:—

(1) The text of this decree.

(2) Workroom regulations, imposing upon the workers the duty of making use of overalls and of the articles necessary for cleanliness which are placed at their disposal in view of section 4.

7. The minimum periods, as provided for in section 69 of Book II of the Labour Code, for complying with formal instructions shall be—

Eight days for formal instructions in pursuance of the provisions of section 4 (paragraph 1) of this decree.

Four days for formal instructions in pursuance of the other provisions.

As a temporary measure, the periods applying to the formal instructions to the heads of concerns, previous to the publication of this decree, shall be adhered to as previously fixed.

8. In pursuance of sections 3 and 4 of the Act dated 26th November, 1912, the decree dated 18th July, 1902, and the decree dated 15th July, 1904, shall cease to be applicable from the date of the publication of this decree.

9. The Minister for Labour is entrusted with the carrying out of this decree, which shall be published in the *Journal Officiel* of the French Republic and inserted in the *Bulletin des Lois*.

2464. Mr. MANNING: Is that an Act of the French Chamber of Deputies?

2465. DEPUTY-PRESIDENT: No; this purports to be a decree of the Minister, which is, I understand, the equivalent of regulations made in this State under the authority of the Government.

2466. Mr. MANNING: That is 1913?

2467. DEPUTY-PRESIDENT: Yes.

2468. Mr. MANNING: This one of 1909 prohibits the use of white-lead.

2469. DEPUTY-PRESIDENT: After five years have elapsed. Before the five years have elapsed this decree of 1913 is issued.

2470. What else did you find?—On the 5th April, 1918, there is a Ministerial Circular issued by the delegation of the Act of 1909. Of this I have the *Bulletin du Ministère du Travail*, which gives the official version in French. I translated this.

2471. DEPUTY-PRESIDENT: The book you quoted from is vol. xxv of the *Bulletin du Ministère du Travail*, and the page is 82 with an asterisk?—Yes: I tender the translation of that, which I vouch to be correct.

2472. DEPUTY-PRESIDENT: This is the translation:

In terms of the articles 78, 79, and 80 of Book II of the Labour Code and Public Welfare, which reproduce the text of the law of 20th July, 1909, the use of white-lead in all works of painting, of whatever nature they may be, executed by workmen painters, inside and outside of buildings, is prohibited as from 1st January, 1915.

Anticipating the legislature, public administrations long before the law of 1909 had taken steps to prohibit the use of white-lead in the painting of buildings which they had to erect, especially in inserting in the specifications of their contracts the prohibition of its use.

Actual circumstances, which have considerably reduced the supervising staff, have not allowed until now the securing of the fulfilment of the provisions above mentioned.

The question has recently been raised whether it is possible for contractors to obtain in sufficient quantity harmless substitutes for white-lead, and from the first informations which have been obtained on that subject it results that there exist fairly large stocks of the products mentioned.

The administration had besides studied the effect it would have on the war services, of measures likely to cause an increase in the consumption of zinc composites. The Minister for Armaments and War Manufactures has informed me that, in view not only of the known possibility to produce oxide of zinc by direct treatment of the ore, but also by the lesser demands of war material, he sees no inconvenience of the application of the Act prohibiting the use of white-lead in the work of painting buildings.

I consulted also the above-mentioned administrations, and it results from their answers that the clause of prohibition for the use of white-lead has been enforced since the beginning of the war, and no difficulties have resulted therefrom.

It seems, therefore, that the enforcement of articles 78, 79, and 80 of Book II of the Code of Labour do not actually butt against an impossibility due to a force majeure (absolute necessity), and I think that there is no longer any reason to delay to put generally into force its legal provisions. I therefore ask you to be good enough to demand henceforth from all painting contractors in your district the enforcement of the rules of the Code of Labour and Public Welfare. I call your attention to article 105, paragraph 11, of that Code, in terms of which: "In case the works of painting aimed at by article 78 are executed in inhabited dwellings, inspectors can only enter into those buildings after having obtained permission from the occupiers."

Regarding the interpretation to give to article 78, my Department has been consulted on the point to ascertain whether white of zinc containing more than 3 per 100 of lead metal in the state of sulphate of lead lightly basic could be consistent with the legal provisions bearing prohibition of the use of white-lead.

My Department has admitted, after confirming advice from the Consultative Committee of Arts and Manufactures, that such white of zinc, if it does not contain lead in the state of white of lead, meets the legal provisions. The committee had even admitted that one could

allow a maximum proportion of 5 per 100 of some kind of a subsulphate as shown by analysis and dosed in a state of subsulphate lead under the form of white-lead being absolutely prohibited.

In these conditions I see no grave reasons why this latter proportion of 5 per 100 of some kind of a subsulphate of lead should be tolerated during the continuation of the war for commercial white of zinc used in the painting of buildings.

Herewith you will find a sufficient number of circulars for the use of the inspectors of your district.

That is a circular from the Minister, apparently. I regard it as an administrative instruction.

2473. MR. MANNING: I have not followed it closely enough, reading it very quickly, to see the exact application of the exigencies of war to that. Of course, one knows that the use of white-lead was prohibited everywhere during the war—I mean it was unobtainable in certain parts of the world. I do not think it was used in England, and do not suppose it was used in France.

2474. DEPUTY-PRESIDENT: The purport of the circular is, I think, to show that the demands for war material did not make it impracticable to obtain a substitute metal which is prescribed by the anti-war law. I should not put it quite so definitely. No substitute metal was prescribed, but it was implied there would be a substitute for white-lead, and no emergency of the war made it impracticable to obtain the substitute for white-lead which might be used.

2475. MR. MANNING: I think it follows on the hypothesis that white-lead was unobtainable because it was all used for war purposes. I throw out that suggestion.

2476. DEPUTY-PRESIDENT: It may be looked at from that point of view.

2477. What is your next search?—On the 13th June, 1919, there is a circular of the Minister for Labour giving definite instructions to inspectors to enforce the Act.

2478. You found that circular in vol. xxxi of the *Bulletin du Ministère du Travail* at page 145?—Yes. I tender a translation of that circular.

2479. DEPUTY-PRESIDENT: This is a very short circular, and is as follows:—

By a circular, dated 5th April, 1918, I made known to you not to delay any longer the putting into force of the legal conditions concerning the prohibition of the employment of white-lead in the painting of buildings. I ask you, therefore, to demand henceforth of all contractors of painting to fulfil the conditions of the articles 78 and 79 of Book II of the Code of Work—

2480. MR. MANNING: Does that say the prohibition?

2481. DEPUTY-PRESIDENT: Yes, concerning the prohibition of white-lead.

2482. MR. MANNING: The word here is “disposition.” Witness: You are looking at the wrong line.

2483. DEPUTY-PRESIDENT: The circular goes on:

I have the honour to remind you of these instructions, and to see that the legal conditions are observed.

The prohibition of white-lead in the painting of buildings, which was to be put in force on the 1st January, 1915, has been prevented by the war, but it was in 1909 that those interested in the matter, after long debates in Parliament, were warned of this prohibition. The legislator has given them a delay of more than five years duration to prepare themselves thereto. No new delay can be granted.

I ask you to see that a wide publication of the present circular is given in your district, which I cause to be published in the official gazette.

2484. MR. MANNING: It has not been made known so far under what instructions the Act was suspended during the war.

2485. DEPUTY-PRESIDENT: It was passed by a subsidiary Act during the five years. Then the occurrence of the war compelled the Government (as I gather from the documents apparently) to refrain from enforcing the Act when the due date for enforcement had arrived.

2486. MR. MANNING: In 1914?

2487. DEPUTY-PRESIDENT: Yes. In 1918 the Minister conceived it to be his duty to inform the inspectors he was about to enforce the Act, and in 1919 he makes no further demur about it, and issues these instructions to absolutely enforce the Act.

2488. MR. MANNING: There was something in the interval?

2489. DEPUTY-PRESIDENT: Yes, the circular of 1918—the first one read—which discusses substitutes.

2490. MR. MANNING: What is the meaning of “entravée” in the act of executing a work?—Witness: “Hindered.”

2491. MR. MANNING: The system over there is a little complicated, because apparently there is nothing in the 1909 Act which invests the Minister with any authority. Of course, in the Act here we would find that. Their system may be different; it is a general provision over there. Of course, I do not know whether the witness has access to all the Acts which have been passed or proclaimed since 1919.

2492. DEPUTY-PRESIDENT: No. I think we will find from examination of the witness he has confined his research to such documents or books as are in the possession of the Department of Labour and Industry, and of the Board of Trade. The Department has a library which includes exchanges which it gets from the Minister for Labour in France. One of these exchanges is this Bulletin of the Minister for Labour, which corresponds in all respects, I think I may say, from my own personal knowledge of it, to the *Industrial Gazette* of the New South Wales Department of Labour and Industry.

2493. MR. MANNING: There is often something in the nature of a preamble or some final clause which appears to be formal in the Acts of Parliament, which is very often left out in these reprints.

2494. DEPUTY-PRESIDENT: Yes, we are in a difficult position as far as that is concerned. I do not know if the witness knows anything of the constitutional law of his own country. He may be able to tell us how the Decrees are made.

2495. MR. MANNING: For instance, some of the things reprinted in the *Industrial Gazette* are not always absolutely complete. It makes sometimes a very big difference if you find a final clause which looks quite innocuous—

2496. DEPUTY-PRESIDENT: What use did you make of the Consul's library;—when you found the translation of the document in this, you endeavoured to verify it in the Consul's library?—I verified it with the Official Gazette of Code of France.

2497. DEPUTY-PRESIDENT: Our gazettes do not contain the text of the Act of Parliament. We have made the best research that could be made, I think, in the circumstances. We cannot say that we have all legislation, or regulations, or circulars relating to the use of white-lead, but we have found all that can be found in the literature which purports to contain that kind of matter, and that is available to us. For instance, these series of volumes, the Bulletin of the International Labour Office, is received in the process of exchange by the Department of Labour and Industry from the publishers, and it is a publication that purports to give the whole of the legislation connected with labour affairs of the world. That is a series of volumes, fourteen in number at the present time.

2498. MR. MANNING: I do not know how one could find out whether that Act has really been put into force or not. There is frequently an Act on the statute-book which is law, but not enforced.

2499. DEPUTY-PRESIDENT: The Apprentices Act, to wit—almost forgotten.

2500. MR. MANNING: We are under the impression, at any rate, that this law is not enforced in France. I do not know if the Board has facilities for making inquiries on the subject through consular channels.

2501. DEPUTY-PRESIDENT: Yes, it might be done.

2502. MR. MANNING: We regard the search as absolutely insufficient, if not absolutely complete. It would be no use in looking up a subject and getting to 1920. We want to get to 1921 and see what has happened, because in the last week something may have happened which has altered the whole business. Of course, one realises any information has value, but its value consists really in affording an indication of other channels through which information may be obtained. Unless it is exhaustive, it is useless.

2503. DEPUTY-PRESIDENT: We must endeavour to help one another. The Board has gone as far as it can through its own officers, and if you can give the Board information that this law has been abrogated, the Board will be glad to get the information from you.

2504. MR. MANNING: We will make inquiries, but the trouble about it is this: Suppose there is an Act on the statute-book and you inquire through official sources, they will say, "Yes, the Act is there, and has been put into force," because it is their duty to see it is put into force. I mean, the breach is simply winked at.

2505. DEPUTY-PRESIDENT: Of course, this is a matter of collateral value only and is not relative to the main issue. The main issue is, What exists in New South Wales in the way of ill-health, and what should be done to cure it?

2506. MR. MANNING: That is why I suggest that we merely examine local conditions, untrammelled by the influence of external events. We would be giving the Conference at Geneva the best possible assistance, because as soon as they see their deliberations have been affected by the introduction of foreign matter, if that foreign matter does not rest on a sound basis, the result of the recommendation here is disregarded and is useless.

2507. DEPUTY-PRESIDENT: The same considerations as I suggested the other day may apply to the development of scientific and medical opinion. We cannot confine ourselves to local medical opinion.

2508. MR. MANNING: Science is not confined to Acts of Parliament, though.

2509. MR. CONNINGTON: I am trying to get the fact that there was an inquiry in 1911, and the question was also dealt with by the Interstate Commission, which inquired into industries which should receive assistance, and so forth.

2510. DEPUTY-PRESIDENT: We will be glad to have the reference.

2511. MR. CONNINGTON: I have it all here. It shows the subject matter has come before Australian Commissions, or has been investigated during the course of inquiries and commissions.

2512. DEPUTY-PRESIDENT: I think developments in foreign law ought to be known to us, but I do not think they are going to influence us to a remarkable extent in the conclusion we may come to.

2513. MR. CONNINGTON: I think unless it can be shown no people suffer from lead-poisoning in Australia, the fact must be taken that the people are suffering from the result of lead-poisoning. Then the question is, Can we still carry out the work of the community? That is as I see it, but perhaps not as the Board sees it. Can we still carry on the work of the community without endangering life?

2514. DEPUTY-PRESIDENT: We had better discuss those matters after we have all the evidence we can collect.

2515. You searched through the same sources for the laws of countries other than France, upon the same subject?—Yes.

2516. What did you find?—In vol. 6 of the Bulletin of the International Labour Office there is a Royal Order dated 25th July, 1910—

2517. DEPUTY-PRESIDENT: It is a Royal Order dated 25th July, 1910, concerning the use of white-lead in builders' painting operations. The first section is the important section for our immediate purpose:

In builders' painting operations, the use of white-lead, as well as the scraping and pummicing of surfaces painted or coated with white-lead, shall be subject to the following regulations:— . . .

2518. Mr. MANNING: That is a copy of the French Act?

2519. DEPUTY-PRESIDENT: Not quite. There are twenty regulations to which reference can be made. The extract is to be found at page 125 of vol. 6 of the Bulletin.

2520. Mr. MANNING: The "Regulations." I do not know if that is synonymous with "provisions," because unless it is, there is no regulation brought out, and from the numbering of the sections one gathers it is not synonymous with provisions, because "Regulations" appears in section 1, and not in sections 2, 3, 4, 5, and so on.

2521. DEPUTY-PRESIDENT: It is not the kind of arrangement we adopt here.

2522. Mr. MANNING: The French one is:

In workshops, yards, or buildings in course of construction or under repair and generally in all places where the work of house-painters is carried on, directors, contractors, and managers shall be bound, without regard to the rules laid down by the Act of 12th July, 1893, in respect of the health and safety of work-people, to conform to the following provisions:— . . .

Then it has not got a list of provisions or anything of the kind, but goes on to section 2. There are some regulations referred to in the later edict, and there are no "Regulations" as far as we know before us, unless these here are regulations and called "provisions" in this book.

2523. DEPUTY-PRESIDENT: Upon that point, I am unable, myself, to throw any light.

2524. Mr. MANNING: We will look into that, perhaps, more closely.

2525. DEPUTY-PRESIDENT: There is a further enactment in regard to Belgium, is there not?—Yes.

2526. DEPUTY-PRESIDENT: Again, in relation to Belgium, you produce volume VIII of the Bulletin of the International Labour Office, and refer to page 323?—Yes.

2527. But that does not give the text of the law?—No.

2528. It refers to a Ministerial order, enforcement of Section 8, paragraphs 1 and 2, of the Royal Order of 25th July, 1910, in regard to the employment of white-lead in builders' paint work. This Ministerial order is dated 11th February, 1913?—Yes.

2529. Your research, so far as Germany is concerned, has produced matter that refers only to the manufacture of lead colours and lead products?—Yes.

2530. It does not relate to painting?—No. I also produce volume VIII in relation to Switzerland, and I refer to page 359.

2531. There you refer to an order respecting the protection of life and health of persons employed in building operations and the inspection of scaffolding (Building Inspection Order of the 10th March, 1911). The extract reads, under the head of lead-poisoning:—

"(56). The use of paints containing lead in all decorating and painting work must be avoided as far as possible.

"The cleaning with pumice-stone and rubbing down of objects painted with poisonous colours, may be carried out only if the said

objects have been previously moistened. Closed rooms must be sufficiently ventilated. Vessels containing poisonous, and especially lead, colours, must be distinctly marked.

"The employer shall provide washing facilities on the works for workers engaged in dealing with such paints, and shall place at the disposal of each worker a nail-brush, soft soap, and a towel, which latter shall be changed every week. The workmen must wash their faces and hands before taking meals and before leaving the work-place. Working clothes must be removed before taking a meal.

"While work is being carried out with colours containing lead, the workmen shall be prohibited from taking food, drink, or snuff, or chewing tobacco."

That appears to be an order relating only to the town of Zurich?—Yes, Switzerland.

2532. Yes, but it seems to be a municipal order relating to the town of Zurich?—Then I refer to volume x, which refers to colours containing lead.

2533. Again, in relation to Switzerland, you point to an order reported in volume x of the International Labour Office, at page 113 that is an order relating to the protection of the workers and the prevention of accidents in building operations, dated the 27th June, 1914?—Yes.

2534. Under the sub-head of "Colours containing Lead," the provision is made:—

"73. The use of colours containing lead in any decorating and painting work shall be avoided as much as possible. The cleaning with pumice-stone and rubbing down of objects painted with poisonous colours shall only be carried out if the said objects have been previously moistened. Sufficient ventilation shall also be provided if such work is carried on in closed rooms. All vessels containing poisonous, and especially lead, colours, shall be distinctly marked."

The rest of the provisions are the same as those I have read in relation to the town of Zurich?—Yes. Then there is a further reference at page 368 of volume viii, with relation to France.

2535. This deals with metallurgy, silver-lead assaying, manufacture of accumulators, glass works, manufacture of lead enamels, their application, manufacture of pottery, decoration of porcelain or earthenware, chromo-lithographic ceramics, manufacture of alloys, oxides, lead salts, and colours. It deals with the application of lead enamels. This is a decree, dated 1st October, 1913, embodying public official regulations for the enforcement of the provisions of book 2 (chapter ii) of the Code of Labour and Social Welfare in regard to hygienic rules applicable to trades in which the staff is exposed to the danger of lead-poisoning. These regulations relate in the main, to manufacturing processes which subject the workers to lead risks?—Yes. Then there is a further reference at page 425 of volume viii with regard to Russia.

2536. These are regulations concerning the erection of factories and workshops for the manufacture of lead preparations and the measures to be taken for the protection of workmen employed therein. This is Imperial Russia, I take it. The regulations can be referred to. Does that complete the tale of your research?—Yes.

(Witness retired.)

2537. Mr. CONNINGTON: While you are on the subject of regulations in different countries, might I refer you to a book called the House Documents, Vol. 95, Bulletin 120, of the Bureau of Labour Statistics, United States Department of Labour. On page 61 you will find a reference to the regulations governing the use of lead in painting in Germany, France, Belgium, and Austria.

2538. DEPUTY-PRESIDENT: What is the date of that publication?

2539. Mr. CONNINGTON: 1912-13.

2540. DEPUTY-PRESIDENT: It is a bit old. The English report of 1914 contains a reference to the legislation in European States on the subject, but it has not in the section devoted to that particular matter as much information as Mr. Aucher has given us. Is there in that book reference to legislation in States other than those mentioned by Mr. Aucher?

2541. Mr. CONNINGTON: It has reference to Germany, and it gives the full prohibition in France. It covers Belgium and Austria.

2542. DEPUTY-PRESIDENT: Mr. Aucher did not make any reference to Austria.

2543. Mr. CONNINGTON: It is a short reference, and perhaps I might read it:—

“All hand-mixing of white lead is prohibited. In case of other colours the hand-mixing is regulated. Dry-rubbing of fresh paint or of old paint is prohibited. The use of white-lead in inside work is prevented, except in certain cases. Paints containing white lead must be labelled so as to show that fact. Workmen must be instructed as to the dangers of their employment. Medical examination is required every three months, where over twenty painters are employed, and under the same conditions wash and lunch rooms must be provided.”

The rest is the writer's comment with regard to the various codes dealing with the question.

JAMES FELIX McEVOY, sworn, examined as under:—

2544. DEPUTY-PRESIDENT: What are you?—I am chief clerk to the Chief Accountant, Railway Department.

2545. Are you familiar with the railway experience in connection with the administration of the Railway Service Superannuation Act?—Yes, I am secretary to the Superannuation Board.

2546. Will you tell us what the superannuation scheme is?—Roughly, it is a pension scheme for a man upon retirement upon reaching the age of 60 years, or pension at an earlier age if he retires owing to ill-health.

2547. Would persons who might have their health damaged by contact with industrial poisons be benefited under that Act?—Yes. A man who retires on the certificate of the Railway Medical Officer that he is unfit for further work receives a pension, provided he has a service of ten years, or longer.

2548. In the case of men who have not served for as long as ten years, what happens when they are found to be suffering from industrial disease?—Those men upon retirement receive a gratuity not exceeding one month's pay for each year of service.

2549. Do you record the fluctuations in the health of individuals with a view to the assessment of their superannuation rights at the end of their service?—I do not record any details of their health. The way in which a case would come before the Board would be that a man ceases duty on account of illness. He is then sent to the Railway Medical Officer, who examines him, and either grants him leave without pay, or, if he considers he is unfit for any further work, he recommends that he be retired. The papers then go before the Superannuation Board.

2550. Supposing it is a case of temporary illness, and he is only qualified for leave, does the report reach you that he is sick?—Not in that case. No report goes to the Superannuation Board until a man's retirement is effected by the Commissioner.

2551. In so far as you can speak of the more serious injuries to health, the injuries that result in incapacity and result in retirement from the service—because the two things have to be distinguished, I take it; a man may be incapacitated, and later, when his capacity has returned to him, be recalled for service?—That is so.

2552. Will you give us your experience as secretary to the Board, upon the subject of the effects of lead as shown by the records of the Railway Service Superannuation?—As far as records are concerned, I do not remember any cases of men whose illness has been reported by the Railway Medical Officer to be due to the effects of lead.

2553. How many employees are there in the railway service?—50,000.

2554. How many of those are industrial operatives?—The large majority of them; probably 40,000, I should say, excluding clerks, station-masters, and men of that type.

2555. Is the Railway Commissioner his own manufacturer of rolling stock?—Very largely. Some are manufactured outside.

2556. In the manufacture and maintenance and repair of railway stock as carried on by the Chief Commissioner, is paint with a lead basis generally used?—I could not say that. I can tell you the number of painters employed.

2557. How many painters are employed by the Railway Commissioners?—401. Of those, 240 are coach-painters—that is, tramway and railway car painters; and the balance, 161, are house-painters. Those are men who are painting station buildings and offices.

2558. Is there a paint manufacturing shop in the railway service?—I could not give evidence on that; I am not sure on that.

2559. Who could give us evidence with regard to the character of the paint used?—Either the Superintendent of the Carriage Shops at Eveleigh, Mr. Hamilton, or perhaps the foreman painter who would be under Mr. Hamilton's supervision; I do not know his name.

2560. What you can tell us, then, amounts to this: that no claim has ever been made on behalf of a painter incapacitated from service by reason of contact with lead, during the course of your experience of the operations of the Superannuation Board?—That is so. There would be the other question, apart from the Superannuation Board. If a man suffers from lead-poisoning he would have a claim on the Railway Commissioners under the Workmen's Compensation Act. The Superannuation Board has nothing to do with that, of course.

2561. Who controls that work?—Those payments are made through our office. I can give evidence on that point.

2562. Has any claim been made by a painter or a painter's labourer for compensation for injuries suffered by him through contact with lead?—I can say this, that the Commissioners have paid no compensation either in fatal cases or permanent incapacity as the result of lead-poisoning, nor has any claim been made. There may have been some claims made on account of temporary absence from work due to lead-poisoning, but Dr. O'Reilly, the Railway Medical Officer, will give evidence on that point on Monday. The men would be examined by him. We have paid no compensation in any fatal case or any case of permanent incapacity where a man has left the service because of lead-poisoning.

2563. For how long has the Commissioner had a force of 400 painters?—The staff of painters would be practically the same throughout the years, with the exception of the expansion of the service; that is to say, ten years ago the number may have been, say, 350.

2564. But the number of painting tradesmen that the Commissioner has employed during the past ten years would have been somewhere between

350 and 400?—I should say so. Those are tradesmen, of course. That does not include the painters' labourers.

2565. Can you speak with reference to the painters' labourers?—There would be probably a similar number of painters' labourers employed, I should say.

Examined by Mr. CONNINGTON:—

2566. You tell us that you have about 400 labourers in all—coach-painters and house-painters?—Yes.

2567. Is it not a fact that the number of house-painters, or painters who follow the house-painting section of the trade, is sometimes as low as twenty?—I could not say. They may fluctuate throughout the year.

2568. You do not know?—No, I have not looked at that.

2569. I am informed that the painters are anything but regularly employed; they go on and off in great batches at a time. Are you in a position to say whether my information is correct?—You are speaking about house-painters?

2570. Yes, house-painters?—House-painters may be dispensed with at certain times of the year.

2571. It is not what may be done. Do you know what really happens? Do you know whether the painters are put on and off in large numbers from time to time?—Temporary house-painters are.

2572. If I am informed that sometimes the whole staff employed is not more than twenty to thirty, are you in a position to say whether my information is correct or otherwise?—Not without looking it up. I would not say it was correct.

2573. You do not know?—No.

2574. DEPUTY-PRESIDENT: From what source did you get your figures?—From the pay-sheets. There is that number of men employed at present.

2575. Do you mean at the last pay?—Yes.

2576. And your general knowledge of the circumstances of the Commissioner's service justifies you, you think, in saying that the number of painters at present employed is about the average of what the Commissioner would employ over a series of years.

2577. Mr. CONNINGTON: Are you in a position to say that?—Yes.

2578. That the average number of the past twelve months would be 140 house-painters?—Well, I would like to verify that. I did not come prepared to answer that. I just took the last pay-sheets.

2579. If you prefer time to go into the question I am quite agreeable that you should have time?—If I can get the information that is required I will find it out.

2580. As a matter of fact, you looked at the list, and your impression is that that is about the number?—Not impression at all. I took a note of the number of men employed. That is my conviction from my experience of the pay-sheets.

2581. Have you any knowledge that sometimes the number is as low as twenty or thirty?—No, I have not.

2582. If that is the fact, then your views as to the average are very incorrect?—If there are only twenty employed at times, it may be that twenty are only employed for perhaps a month or two months.

2583. Do you know whether only twenty are ever employed?—I will look it up.

2584. You said here that the average is 140?—I think from my knowledge of the case that that is a fair statement, that the average is 140, but I did not go into it.

2585. To get the average you would want to know whether sometimes there were less than 140?—Yes.

2586. And you would have to know whether it is usual for the Commissioner to put off groups of these men at times?—That happens right throughout the service with temporary employees, not only with the painters, but with all the trades. The temporary staff is a fluctuating quantity.

2587. But more so with painters?—Not necessarily. With porters and all trades there is a fluctuation.

2588. You do not tell me that porters are put off in great batches?—Certainly.

2589. At Darling Harbour?—Throughout the lines. The traffic fluctuates. The same applies to fuelmen.

2590. Have you any painters on the permanent list?—I have not separated the permanent from the temporary men. I just took the total.

2591. If I am informed that there are about nine cases on the permanent list, can you say whether that is correct or not?—If you are referring to house-painters only, I am not sure. Most of the coach-painters are on the permanent staff.

2592. My information is that with regard to the house-painters there are nine on the permanent staff?—I cannot say without looking it up.

2593. As far as you know, there may be plenty of sickness amongst the number of painters employed which would never come under your notice at all?—That is so.

2594. You only meet the cases such as where a man through old-age or total incapacity is asking to be put on the superannuation list?—Yes.

2595. DEPUTY-PRESIDENT: Would you not know when a man was drawing sick pay?—No, it would not come under my notice then; only when he is put off finally.

2596. What provision is there if a man is absent from work?—If he is absent through ordinary illness he receives no pay.

2597. Do you know when men are not receiving pay?—We do not inquire into the case.

2598. But you know that men are losing time?—Yes.

2599. Do you know that painters lose time more frequently than other sections of the employees?—I have no knowledge of that.

2600. Mr. CONNINGTON: You do not know who are off and what classes of work they follow?—No, I have no record of that.

2601. You have no knowledge at all whether there are ten men sick or 1,000 men sick?—No.

2602. That does not come under your jurisdiction at all?—No.

2603. Your jurisdiction is confined solely to fixing cases where superannuation is applied for?—Or compensation.

2604. Or compensation for total incapacity?—Yes.

2605. DEPUTY-PRESIDENT: Or death.

2606. Mr. CONNINGTON: Yes, or death. Would it not be out of the superannuation funds that you would make the adjustment?—As well as out of the Commissioner's working expenses.

2607. Take the case of the Workmen's Compensation Act, would that be paid through your office?—Yes.

2608. Then it would be such cases as that which would come under your notice?—Yes.

2609. But as to ordinary sickness amongst the employees, you know nothing whatever about that?—No.

2610. There might be hundreds sick from any disease and you would not be aware of the fact?—Quite so.

Examined by Mr. MANNING:—

2611. I think you said that Mr. Hamilton could give information about the lead being in the paint?—Yes.

2612. Has he been there any length of time?—He has been superintendent of the carriage shop for about five years. Perhaps the foreman painter would be a better witness.

2613. DEPUTY-PRESIDENT: Is there some one who buys the material for the Railway Department generally, and who can say how much white-lead has been bought or manufactured and used by the Railway Department?—All purchases of material go through the Comptroller of Stores.

2614. Would it be better for us to ask the Comptroller of Stores to give evidence as to the amount of white-lead purchased and the use to which it has been put?—The Comptroller of Stores would be in the position to give the amount purchased, but I do not know whether he could give evidence as to the use to which it is put.

2615. Would Mr. Hamilton be more likely to give us the information we require than the Comptroller of Stores?—Yes. I would suggest perhaps the foreman painter might be able to give you that information.

2616. Mr. MANNING: Mr. Lucy is the Chief Mechanical Engineer?—Yes.

2617. Perhaps he could give us the information—

2618. DEPUTY-PRESIDENT: I think railway material is bought by a section of the Commissioner's staff, which is practically independent?—Yes, the Comptroller of Stores; that is a separate branch of the service.

2619. Will you be good enough to communicate our needs to the Comptroller of Stores and ask him to delegate to a man who is best able to give the information we require, to attend here on Monday with the information?—Yes.

2620. First of all, we want information with respect to the base of the lead paints ordinarily used in the Commissioner's workshops and on the Commissioner's buildings; then we shall be glad to know to what extent the Commissioner is a consumer of white-lead, and in what uses that lead is consumed?—Very well.

2621. Mr. CONNINGTON: And whether he uses any substitutes.

2622. DEPUTY-PRESIDENT: Yes, and what substitute for white-lead in paints are produced and used by the Commissioners, and in what proportions white-lead and its substitutes are used?—Very well.

2623. Mr. CONNINGTON: And possibly in a general way the material dealt with. It may be that the lead paints may be used on carriages, and the other if it is used on houses, or *vice versa*.

2624. DEPUTY-PRESIDENT: I indicated that in the first section. There are two sections: the paint used in the workshops and the paint used on the buildings. The same will apply to the substitutes. The same will apply to the facts?—I will see who is the best officer to give evidence on that. Do you want any further evidence about the number of painters?

2625. Yes. Will you draw your averages in the most reliable way from the actual figures to be found in your books, and come here prepared to tell us how the averages were drawn by you and what they stand at?—Yes.

2626. Mr. CONNINGTON: Have you not got timekeepers, and so forth, whose duty it is to furnish reports of the time worked each week by the men, or would that go through another department?—No. The pay-sheets pass through my hands. You want the average number of painters employed through a series of years.

2627. DEPUTY-PRESIDENT: Yes, the average number of painters employed for the past ten years, if you can give it to us. We want the yearly average. It does not matter that there is a slump in painting in one particular month of the year. What we want to know is if the average number of painters

employed in the annual period, whether it is from July to June, or whether it is from January to December, we do not care?—That is irrespective of the time the men are employed?

2628. Yes. If you have 200 painters on one month and 100 the next, the average for the two months will be the half of 300?—I see.

(Witness retired.)

JOHN GOODWYN, sworn, examined as under:—

2629. DEPUTY-PRESIDENT: What are you?—Insurance manager.

2630. For what company?—The Australian Provincial of Sydney.

2631. Have you had a long experience as insurance manager?—As manager about eighteen years; of insurance about thirty-one years.

2632. You were, until quite recently, the manager of the Queensland State Insurance Office?—That is so.

2633. How long were you in the Queensland State service?—A month or so less than five years.

2634. You organised the system of State Insurance for the State of Queensland.

2635. Did you fix your rates upon independent lines?—No; we adopted the rates that the companies had in force when I went there.

2636. The rates current in Queensland were adopted by you for the purposes of the State basis?—Yes. Of course, the rates which were current when I went there were for an Act, the benefits of which were very much less than the Act which I administered, so that in adopting the rates which were in force for the previous Act we actually gave a very large reduction of rate.

2637. The new Act to which you make reference was the 1916 Act?—Yes, it came into force on the 1st July, 1916.

2638. And its provision were amplified in the year 1918?—There was an amendment passed in Parliament that year, which came into force on the 1st July, 1917, which brought industrial diseases within the Act.

2639. And you had then experience of compensating persons who had suffered from industrial diseases as from the 1st July, 1917?—Yes.

2640. When did you leave?—I left at the end of October last.

2641. I have here the Workmen's Compensation Act for the State of Queensland and the schedule of rates you published with it, and I find that with respect to painters as for the year 1919 apparently, for painters, signwriters, and paper-hangers the rate was 27s. 6d.; in respect of paint and varnish manufacturers the rate was 22s. 6d. Do you distinguish between the risks which are incurred by painters, signwriters, and paper-hangers in the one case, and those incurred by paint and varnish manufacturers?—Yes, I do. Of course, those rates cover accident as well as disease. As a general rule, a painter who is working on scaffolds and on walls away from the regulated factory would run the risk of accident.

2642. That is, the outdoor conditions which make for health are more than counteracted by the control that obtains through factory officials and others in the well-regulated factory?—Yes. The general experience is that the trades which are carried on away from the well-regulated factory carry a higher ratio than those which are carried on in the factory.

2643. And the disease?—Honestly, we had so little experience of disease in Queensland.

2644. Will you tell us what your experience was?—The easiest way, I think, is to quote from the official document. In the year 1917-18 I have no record of any claims at all, in respect of lead-poisoning by painters or anybody else. In the year 1918-19 there were twenty-four claims which led

to compensation being paid, and they were arsenic poisoning, lead, mercury, zinc, and other compounds, all combined together. It would be very easy to get the Secretary, who is also the Actuary of the State Government in Queensland, to separate them for you. It would not take him very long.

2645. Could you distinguish between those suffering from lead-poisoning and others?—I remember one lead-poisoning case which had fatal consequences. Whether it was in 1918 or 1919 I cannot say. It was the case of the poisoning of a man working on a linotype machine in a printing shop. I remember one or two cases of house-painters who suffered serious disability, but I cannot at the present time remember that there was any death claim. Those cases simply went to the medical officer. I mean, the man made a claim and the case went to the medical officer, and if the medical officer certified that he was suffering from lead-poisoning we would pay him. It was not a question of going into the matter with very much care, because, as you can imagine, with 200 odd claims every week you have to go ahead with your work. If the Government Medical Officer certified that a man was suffering from any of the poisonings included in the Act we simply paid out under the certificate until the doctor certified that the man had recovered and could go back to work. I have only recollection of one fatal case from lead-poisoning, and of three or four vaguely-remembered compensation cases. The most dangerous thing up there was arsenic poisoning in connection with sheep dip. That is rather out of your line at present, but the A.W.U. up there could give you some very valuable information on that if you ever happen to be inquiring into it.

2646. I may take it from you that there was every inducement offered men who were affected by lead when working as painters to make claims for compensation?—Yes.

2647. The process of establishing the claim was facilitated in every way on the man's behalf?—Yes, and the union secretary would see that he did make a claim.

2648. And the compensations were worth getting?—Yes. They were £2 a week, and £600 in case of death.

2649. Were the claims from lead-painters frequent enough to induce you to alter the rates?—No. We simply took over the accident rates as we found them in the first instance, and we covered the additional cost without additional charge.

2650. Does that refer to all cases?—Yes, that refers to all the industrial policies.

2651. You did not find it necessary to raise any rate?—No, with the exception of the mining industry, on which we put 20 per cent. That was for the miner's phthisis. That was a different thing. With regard to the industrial business we found it unnecessary to put any loading on.

2652. Will you refer to your experience in the State of New South Wales;—did you have experience in the State of New South Wales before you went to Queensland?—I did.

2653. For how many years?—From the end of 1902 until 1910; about eight years. That was before the Workmen's Compensation Act came into force here.

2654. The earliest Act in New South Wales was the Act of 1910? Yes, so that I had no experience under the Workmen's Compensation here before 1910. I might say that before I decided to recommend the Minister to make any additional charges I wrote to New Zealand, and asked for their experience, and the Insurance Commissioners there supplied me with some figures which showed that the cost to the Government and the companies in New Zealand, arising from industrial poisoning, was so trifling that it was not worth incurring any enmity by raising the rates; it was better to carry it.

2655. You are at the present time the manager of an insurance company?—Yes, but I have nothing to do with anything but the fire part of it.

2656. Do you not cover accidents?—The company does, but I have nothing to do with that part of it. I cannot tell you anything about that part of it at all. Somebody else is in charge of that. I have only just come back, and I have never worked under a Workmen's Compensation Act here which covers industrial diseases.

Examined by Mr. CONNINGTON:—

2657. In Queensland you were operating under the Workmen's Compensation Act?—Everything, but the Workmen's Compensation Act especially.

2658. But you did not deal with ordinary sicknesses?—No.

2659. In the case of a painter who was suffering from lead-poisoning, unless it could be shown that he was poisoned, he would not come under your department?—Unless he showed the usual signs of lead-poisoning, the marks in the teeth, and the dropped wrist and the usual things, such evidence as the medical officer would accept.

2660. He had to obtain the medical officer's certificate?—He had, but I do not remember a single case in which a claim was made which we rejected. I do not think there were any claims for lead-poisoning which were rejected on medical evidence.

2661. That is not the point. The point I am trying to make is that the painter who thought he was diseased with the poison would attend before your medical officer?—Yes.

2662. And the medical officer in every case gave the certificate, and you paid?—That is so.

2663. That is your belief?—Yes.

2664. In the case of painters suffering from the small sicknesses associated with the industry?—Such as painter's colic. I think I remember one case of painter's colic which we paid for. I would not like to be dogmatic on that, but I think I remember one case.

2665. Did you pay for that as accidents?—It is paid for as an industrial disease under the Industrial Diseases Section of the Workmen's Compensation Act.

2666. They were all dealt with under the one head?—No, the claims are all separated.

2667. Take an industrial disease and an accident?—They get the same ratio of compensation, but an industrial disease claim is not an accident claim. They are separated. In the statistical report which accompanies the Commissioner's annual report you can get the number of disease claims separate from the number of accident claims. The case that was certified to by the doctors was paid for as if it was an accident, but in fact it was an industrial disease and was separated, and is shown here as an industrial disease claim.

2668. Take the case of a man suffering with colic; he would not get a certificate that he was poisoned?—He might. If he got the certificate that the painter's colic arose from lead-poisoning he would get the compensation.

2669. But they may have colic without being poisoned?—If he did not make a claim he would not get any compensation.

2670. But a man may suffer from colic without being poisoned. He might suffer from colic as the result of his occupation.

2671. DEPUTY-PRESIDENT: Do you suggest, Mr. Connington, that a man may suffer from lead colic without being poisoned?

2672. Mr. CONNINGTON: I am suggesting that he might within the meaning of the Act.

2673. WITNESS: We did not split straws like that.

2674. Mr. CONNINGTON: I only want to know how you treated those cases?—I remember no such case. If the doctor said that he was suffering from

colic as the result of his employment, that is to say, that it was one of the sequelæ of lead-poisoning, then I should have undoubtedly ordered payment.

2675. That would be under the disease of the occupation?—Yes.

2676. If the doctor certified that he is poisoned, you pay as an accident?—You pay as though it were an accident.

2677. Is it not regarded as an accident?—No. In these statistics it is not in the accident section, but is in the industrial diseases.

2687. Have you read the New South Wales Act?—No.

2679. Subject to correction, lead-poisoning is an accident under that Act, is it not—

2680. DEPUTY-PRESIDENT: No, it is an industrial disease. Perhaps if Mr. Goodwin were to tell us what the provision is in Queensland with regard to lead-poisoning we may understand one another.

2681. WITNESS: I think Mr. Connington is making a mistake in regard to that. I will find you the exact wording.

2682. DEPUTY-PRESIDENT: There is a distinction between the statement of diseases in our Act and the statement of diseases in the Queensland Act which must be kept in mind. A reference to 14 (a) of the Queensland Act will enable Mr. Goodwin to tell you exactly how the industrial diseases table is set out.

2683. WITNESS: The section says:—"Subject to this Act, where a worker at the date of death or incapacity has suffered or is suffering he or in case of death his dependants shall be entitled to compensation in accordance with this Act as if the disease were a personal injury by accident suffered by the worker at the place of employment." In the statistical report which accompanies the Commissioner's report the whole of the claims made under section 14 (a) are distinguished from the claims which are made under the rest of the Act. This table 9, on page 23 of the report for last year, comprises all the claims made under section 14 (a).

2684. Mr. CONNINGTON: That is, you paid as if that were an accident?—Well, you pay as if it were a personal injury by accident. As if the disease were a personal injury by accident. You are paying for disease remember.

2685. DEPUTY-PRESIDENT: That only applies to men suffering from disease, the same benefits as are taken by men suffering from accident.

2686. Mr. MANNING: In other words, it is a mode of calculation.

2687. Mr. CONNINGTON: The men so benefiting would first get the doctor's certificate?—They first make a claim in the schedule form, and then present themselves for medical inspection to the medical officer for the district. The medical officer certifies that they are suffering from, say, arsenic poisoning, phosphorous-poisoning, lead-poisoning, or whatever the case may be.

2688. Will you read the reference to poisoning in the table?—Arsenic-poisoning, lead, mercury, copper, zinc, or other mineral poison and their sequelæ. The description of process is, "Any employment involving the use or handling of arsenic, lead, mercury, copper, zinc, or other mineral, or their preparations or compounds."

2689. Under that section, in order to get paid they have first of all to get the doctor's certificate?—Yes.

2690. There are the smaller sicknesses of the trade. Take the case of colic, where a man is taken ill for a few days or a week. In such cases as that did they come under your notice?—Not unless they made a claim.

2691. If a man complained to you that he had colic?—He can only complain in one way, and that is by making a claim. The claim in Queensland is made not on the employer, but on the insurance company personally. The point I wish to make is that the smaller sicknesses would not be paid for under that Act?—Unless a claim was made. Painter's colic would undoubtedly, in my opinion, be a disablement for which compensation would

be payable, because I understand that painter's colic is a result of lead-poisoning.

2692. There are men who claim they are suffering from painter's colic who will not admit that they have been poisoned. However, the smaller sicknesses which are not certified to as being the result of poisoning would not be recognised by you under that Act?—No, they would have to be certified to by the medical officer on a claim being made. Of all claims made for all mineral poisoning, only six were rejected in two years.

2693. Apart from the men who are actually poisoned, there may be a lot of small sicknesses incidental to the trade?—There might be.

2694. Which you would know nothing whatever about?—Quite so.

2695. DEPUTY-PRESIDENT: For how long had a man to be sick in Queensland before he could make a claim for compensation?—Three days; and then the claim dated back to the date of disablement.

2696. MR. CONNINGTON: Did you cover all Government Departments in Queensland?—Yes, everything.

2697. How long was it in operation?—The industrial disease section, three years to the 30th June, 1920, and four years to the 30th June, 1921. The Commissioner's report, dated yesterday, will probably be out in about two months.

2698. However, you only had about three years' experience under that Act?—Yes.

2699. And in that time, as far as you remember, about twenty-four or twenty-five cases of poisoning amongst various trades came before you?—In that case there were forty claims for all classes of mineral poisoning in the whole of Queensland, and arsenic-poisoning I should say would be half of that. As I say, I would not like to be too dogmatic about that. I would ask you to get that information from the Secretary of the State Government Insurance Office. It would not take him two minutes to get the information, and he could give it to you by wire.

2700. Did you have a flat rate for all employees of the Government?—I think the rate on which the Queensland Government's premium was assessed is a confidential arrangement.

2701. Could you say whether it was a flat rate?—It was not. But I do not think I could give you information on that. I do not mind giving the information in private to the President, but I do not think I have the right to give any evidence of any kind at the present time without permission.

2702. Have you not already given evidence to the Board in regard to painters?—Yes, but the Government employees were on a different footing altogether. They were rated differently.

2703. DEPUTY-PRESIDENT: There was one rate for Government employees and another for employees not in the service?—Yes.

2704. MR. CONNINGTON: Your reply to the President was with regard to outside employees?—Quite so, and not with regard to employees within the service.

2705. Did you register employees outside of the service individually or through their employer?—We issued a policy to the employer. We issued a policy to the Treasury for the Government.

2706. Leave the Government out of it?—We simply issued one policy to a big painting firm, such as Ramsays, covering the whole of their employees.

2707. And the rate struck for Ramsays was what?—27s. 6d., less 5 per cent. for prompt cash.

2708. Take the case of a rate struck for a warehouseman, what was that rate?—That might vary from 7s. 6d. or 10s. up to £1.

2709. But it might only be 10s.?—It might be. "Warehousemen, soft-goods, 7s. 6d.; not otherwise classified, 10s."

2710. Take the stevedoring industry?—Stevedores, 80s.

2711. Take the case of the iron trades—boilermakers, blacksmiths, and such like?—The general rate there was about 27s. 6d. Foundries were 27s. 6d.; a retail ironmonger was 12s. 6d.

2712. Mr. MANNING: Are they all in the schedule?—Yes, they are all in the schedule. It is a public document.

2713. Mr. CONNINGTON: Take boilermakers?—27s. 6d. Bolt and nut factory, 27s. 6d.

2714. DEPUTY-PRESIDENT: The Board is in possession of a copy of the schedule, Mr. Connington, and it can be referred to by you.

Examined by Mr. MANNING:—

2715. You told Mr. Connington that the State Insurance system covered all departments?—All departments of the Government.

2716. There is a mine known as the Chillagoe mine in Queensland?—Yes.

2717. That is owned by the State, is it not?—Yes.

2718. And that is a lead mine, is it not?—I believe that is a silver-lead mine, but I do not know anything about that.

2719. But you do know it as a State mine?—Yes.

(Witness retired.)

DEPUTY-PRESIDENT: It is the Board's purpose to have here on Monday the railway doctor, who is acquainted with the condition of health of the 50,000 employees of the Railway Commissioner; Mr. Hamilton, to whom Mr. McEvoy referred us for information as to lead; Mr. Bagnall, who will be able to tell us what white-lead is used in the service of the Water and Sewerage Board, and what classes of paint are given to their painters for their use; also a gentleman to represent the Accident Underwriters' Association will be asked to attend for the purpose of informing us as to the rates that had been fixed and the modification of those rates in the light of the experience of all the companies operating in the State. An effort will also be made to get some gentleman to attend who can tell us the effect of the experience in the naval establishments generally in New South Wales, and presumably in Australia. Do you propose to call Mr. Mahoney, Mr. Connington?

Mr. CONNINGTON: We are in touch with him, and he is going to let us know whether he can do anything useful. He says he does not think he can assist the Board, but he will let us know.

DEPUTY-PRESIDENT: I will leave it to you to determine whether he should be called or not. Some of these witnesses may occupy a good deal of time, but most of them, I think, will not, so I suggest that if you have other witnesses to call you should have them within reach on Monday, and perhaps Mr. Manning might arrange to have some of his witnesses available.

Mr. CONNINGTON: Yes, and we shall have Mr. O'Brien, who will give some general evidence.

DEPUTY-PRESIDENT: Dr. Graham is due to come back on Monday also. If Mr. O'Brien would prefer to have preference I will see that he gets it. I do not want to prejudice his position in any way at all, but it is useful to have him in reserve.

Mr. CONNINGTON: Quite so. And it is useful for him, because he may have to extend his evidence after hearing what is said. Mr. O'Brien is quite satisfied to be in waiting to be called at any time that the Board runs short of witnesses.

(At 4 p.m. the further hearing was adjourned until 10 a.m. on Monday, 4th July.)

FIFTH SITTING.

MONDAY, 4 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. WILLINGTON

MR. ROUTLEY

MR. COOPER.

JAMES FELIX McEVOY recalled:—

2720. DEPUTY-PRESIDENT: You were to prepare some further information for the Board?—Yes. On Friday last I said we had 401 painters employed, including 160 house-painters, but Mr. Connington seemed to think that number was excessive. It was suggested that we might analyse the whole of the time books over a series of years, but I have not been able to do that, because many of the books are in the country districts. However, I have sufficient particulars, I think, to show the figures I gave were correct. Mr. Connington's information was that we had only nine permanent house-painters, and I find we have forty-three. I have also looked up the printed return showing the staff employed to 31st December, 1911, 1914, and 1917, and 1920. There is a return of the staff employed, published every three years, and I find that in 1911 the number of house-painters employed on 31st December was 244 as against the 160 which I quoted on Friday. In 1914 there were 171; in 1917 there were 117; and in 1920 there were 135. I think that without going to the trouble of analysing the whole of the time books, these figures will confirm what I said on Friday.

2721. MR. CONNINGTON: You say you have forty-three permanent men?—**Yes.**

2722. DEPUTY-PRESIDENT: The result of your research is to substantiate and justify the assertion you made that there would be a group of approximately 400 painters of all classes employed in the Railway service. Of that group, 160 would represent house-painters?—That is so.

2723. MR. MANNING: That is the average?

2724. DEPUTY-PRESIDENT: An estimated average.

2725. MR. MANNING: There are some questions which may be asked, not for the purpose of querying the statistics, but to test the value of the information.

2726. DEPUTY-PRESIDENT: That is so. The Board has been unable to give anything like long notice to the big industries which have been called to give the result of their experience in this matter. The witness had made an estimate deliberately, before he gave us his principal evidence. He has now checked that evidence as best he can by a reference to the books, and he believes he has justified the opinion he gave with regard to his estimate; and I will leave it to the parties to challenge him further if they think it necessary to do so.

2727. MR. CONNINGTON: I do not "challenge" it, Mr. Deputy-President. I have no doubt his evidence was given in all good faith.

2728. The forty-three represents the State, does it?—Yes, employed throughout the State.

2729. Can you say how many are in the metropolitan area;—My information would, I suppose, only refer to the metropolitan area?—No, I

cannot say how many are employed in that area—I have not split the figures up.

2730. There may be nine, or some other number?—There are more than nine.

2731. But there are not forty-three, because that represents the whole State?—That is so.

2732. Outside of the forty-three, the others would be casual painters, would they not?—They would be what we call the temporary staff.

2733. They just come and go?—Yes. Many of them, although classed as temporary, are just as permanent as men on the permanent staff. Personally I know a case of one man who has been employed in the metropolitan division since 1917, but is still classed as a “temporary,” although he has not been out of the service one day.

2734. I do not care whether they are classified as temporary or permanent. Out of the 135 for 1920, how many would have been in the employ for six or twelve months?—I cannot say that.

2735. Mr. CONNINGTON: The Board will see why I am asking for this information. Men are going in and out almost daily, and the statement that there are 140 employed to-day and only twenty employed to-morrow would be of value if we knew that these men’s employment spread over twelve months or longer.

2736. DEPUTY-PRESIDENT: As against that we have the estimate of the average. Unless you weaken the evidence of the witness with regard to the average number of painters employed we will still have to assume that of a community of painters there have been, in a series of years, no cases of lead-poisoning.

2737. Mr. CONNINGTON: Yes, but as to the casual or what they call the “temporary” staff, the Board will see the weakness of relying upon such figures. Men will not take employment if they are ill.

2738. DEPUTY-PRESIDENT: Do you suggest a man who has become ill would seek employment with another employer rather than the Railway Commissioner?

2739. Mr. CONNINGTON: No, I do not suggest that.

2740. DEPUTY-PRESIDENT: You see, we are dealing with tradesmen. A man, whether employed regularly by the Commissioner or not, is employed regularly as a painter. The only question is whether he would leave the service of the Commissioner when he became ill and seek employment in another person’s service.

2741. Mr. CONNINGTON: No, I do not suggest that at all.

2742. DEPUTY-PRESIDENT: But that is the dilemma, and I would like you to question the witness along those lines.

2743. Mr. CONNINGTON: Out of the number for 1920, would some of them be engaged for a week, or a couple of weeks?—I cannot say.

2744. All you can tell us is, that is the average spread over a given term?—To 31st December, 1920, 135 were employed.

2745. And you took the corresponding date on each occasion?—Yes.

2746. Is December, in your opinion, a month which is likely to be a busy month with the Railway Department?—No, I do not think so.

2747. I suppose you really do not know?—I do not think it would be, because in the 160 I took that was in June. Why I take December is that in the month in which the printed return was issued, every three years. It was a handy return for reference.

2748. Do you know anything on the question as to whether the busy time is August-September to December, and more men are put on during that period than any other time?—I cannot say whether or not that is right.

2749. MR. MANNING: One knows generally that is not the busy time—August to December.

2750. MR. CONNINGTON: It is the busy time—the spring—for painting.

2751. With regard to men laid up through sickness, &c., are they entitled to any payment during the period of incapacitation?—The ordinary practice of the Railway Department is that if a man is off duty through illness due to natural causes the wages men would receive no pay. If a man is off as a result of an accident he does get paid.

2752. If there were a number of painters laid off through the smaller of the trade sicknesses, you would know nothing about it?—Under the Workmen's Compensation Act the Commissioners are bound to pay.

2735. But that would be for lead-poisoning?—Yes.

2754. For anything else than lead-poisoning you would know nothing about it?—They get no pay.

2755. And you would know nothing of it?—No.

2756. MR. MANNING: You are the secretary of the Superannuation Board?—Yes.

2757. That Board deals with claims for superannuation and also compensation?—Not compensation—only superannuation. All claims for compensation are dealt with by the Commissioners.

2758. This is reported on the notes of your evidence.

Your jurisdiction is confined solely to fixing cases where superannuation is applied for?—Or compensation.

Had you anything to do with compensation?—In my position as chief clerk and chief accountant, I pass all claims paid by the Commissioners—

2759. It does not form part of your activities as secretary of the Superannuation Board?—No.

2760. DEPUTY-PRESIDENT: You are the official recorder of allowances made in respect of the Workmen's Compensation Act by an authority over your head?—Yes; by the Commissioner.

2761. MR. MANNING: You were asked whether there may not be hundreds of people sick and you would know nothing about it?—Yes.

2762. Of course, the duties of the Superannuation Board are such that they would, I suppose, be aware of any epidemic of sickness?—Only an epidemic resulting in deaths. If an employee dies, his widow receives a refund of his superannuation contribution.

2763. Take an epidemic of influenza which has not resulted in deaths—that would be a matter within the knowledge of the Board?—No, it would not; only the fatal cases, the deaths.

2764. Are there no returns made at all of sickness?—Not to the Superannuation Board.

2765. DEPUTY-PRESIDENT: Before you leave that point, I would like to interpose this question: provision is made for the retirement of an officer on account of sickness and his recall to service when he has recovered?—That is so.

2766. DEPUTY-PRESIDENT: So in a case of temporary incapacitation—illness that amounts to temporary incapacitation—that illness is recorded by the witness.

2767. MR. MANNING: That really covers the point I was on.

2768. DEPUTY-PRESIDENT: Can you refer us to the section of the Act?—It is section 113 (b) of the Railway Act; the Superannuation Act is now embodied in the Railway Act.

(Witness retired.)

THEOPHILUS LINNEL O'REILLY, sworn, examined by Board:—

2769. DEPUTY-PRESIDENT: What are your degrees?—Batchelor of Medicine and Master of Surgery, University of Sydney.

2770. You are, of course, a legally qualified medical practitioner under the State law?—Yes.

2771. Will you give us an idea of your professional experience; have you been in the railway service?—I am now, and have been for nine and a half years, assistant Medical Officer to the Railway Commissioner. Prior to that I was four years Second Government Officer for Sydney under the Board of Health. Before that again I was Resident Medical Officer, Sydney Hospital and Coast Hospital.

2772. Will you give the Board an idea of the procedure that is taken by the Railway Commissioners in safeguarding the health, through your services, of the railway employees?—That is rather a big question.

2773. Can you give us your relation to the railway staff in some short form; is there a regular survey of the health of the railway employees, or are you made aware of the health of those employees by individual applications for medical attendance?—As far as sickness is concerned, under the regulations every employee who is off duty ill for a period of longer than three days is required to furnish a medical certificate. These medical certificates are forwarded to the Medical Officers' Branch, and I have seen all of those certificates for the past nine and a half years, except when I have been on leave. Since January, 1920, we have kept in our office a record of all those medical certificates. The number of certificates since January, 1920, to the end of May, 1921 (I have not yet the returns for June), is 16,700, in seventeen months.

2774. That is roughly at the rate of 1,000 per month?—Yes, almost. Of that number, three were certified to be cases of lead-poisoning.

2775. Do you know the occupations of the three patients?—Yes. I do not know how much detail you require in these cases.

2776. If you can give us the full detail of the cases, ever so much the better. You have not their official papers with you, by any chance?—No; but I think I can tell you anything about them you would like to know.

2777. Will you commence, and give us as much information as to those three cases as you can?—The first case is that of James A. Douglas, a fettler. He was off duty ill from the 11th March, 1920, to the 15th April, 1920, about five weeks. He was not seen at our office; he furnished several medical certificates from Dr. Dent, of Boggabri, and some of those certificates stated he was suffering from lead-poisoning.

2778. Was not the diagnosis consistent in his case?—The first certificate stated he was suffering from diarrhœa, laryngitis, and bronchitis. The remaining certificates were for lead-poisoning, and then he gave us details—colic and anæmia. Of course, whether that was caused by lead-poisoning depended on the accuracy of the diagnosis.

2779. Was the method of diagnosis indicated?—The only point raised there is the first certificate being for diarrhœa, not lead-poisoning. In lead-poisoning there is most usually a condition of obstinate constipation—the very opposite to diarrhœa. That is the only comment I have to make upon that.

2780. The doctor does not usually disclose his method of diagnosis, but he did in this case?—No. This was a fettler who made no claim against the Department on account of illness, and no further inquiry was made by our branch.

2781. Did he return to work, as far as you know?—Yes, on the 6th April, 1920, and has not been off since.

2782. What are a fettler's duties?—I do not know that I can tell you more than you probably know yourself.

2783. I hoped that you might, but did not really believe you would be able to give us any information. Perhaps we can get it from some other gentleman?—Of course, they may possibly have to do with paint in their work; but I do not know.

2784. Does that complete your analysis of his case?—Yes. The next case was H. M. McCopper. He was a battery mechanic employed in the Electrical Branch, and was off duty from 23rd January, 1920, to 12th February, 1920. I saw him personally on the 3rd February, 1920. He had furnished medical certificates from Drs. Gordon and Wilson, both of Auburn, whose opinion was he had lead-poisoning. When he was seen by me I was doubtful of his condition. I thought possibly the condition of pyorrhœa which he had could account for his symptoms. Subsequent events showed that he left duty again in October, 1920, and he has since been in Waterfall Sanatorium suffering from tuberculosis.

* 2785. Have you the date in October?—No, but he left duty in October.

2786. That is, he retired from the service?—No, he left duty and has since resumed—on 28th June, 1921. As I said, the subsequent events—namely, the occurrence of tubercular disease—indicated that his illness in January of last year, when it was suggested his absence was due to lead-poisoning, was probably the onset of the tuberculosis which he was afterwards shown to be suffering from.

2787. What were his symptoms in February, 1920, when you saw him?—He was complaining of indefinite pains in his joints, which is, of course, a symptom or can be a symptom of lead-poisoning.

2788. Is it a symptom of tuberculosis, too?—Yes. His other symptoms were those of any toxic condition, such as lead-poisoning, pyorrhœa, or a tubercular disease. I was informed that his duties as a battery mechanic required him to burn, scrape, and file the lead of battery buildings, and in that way he came into contact with lead, and that, of course, suggested possibly his symptoms were due to the lead.

2789. Mr. WILLINGTON: Would lead-poisoning conduce to tuberculosis?—I cannot say that. I have never met with a case in a tubercular patient in which there was any antecedent lead-poisoning.

2790. DEPUTY-PRESIDENT: But you know what is the medical theory on the matter, apart from your practice and experience?—I do not know that there is any definite connection.

2791. Is that the whole of the information with regard to the second case?—Yes. I regret I have not been able to find the file and cannot give the name of the patient, but the third case was that of a painter, and his case occurred in May of this year. He was off duty five days, and had a medical certificate that he was suffering from lead-poisoning.

2792. What were the dates?—I do not know the dates, but he was off four or five days in May of this year.

2793. Mr. CONNINGTON: Have you not got his name?—No. When these certificates go through they are sent into our office monthly, and as I look them through if anything strikes me as likely to be of importance I detach it, and it is then attached to the man's individual file. We have over 100,000 such files in our office. I did that in this case, and it is now attached to the man's personal file, which I am unable to find amongst the 100,000 odd. Unless he makes some claim or the case comes to light again I will not be able to find this particular case for you.

2794. Why do you think you will find it for another claim?—Because his file will be turned up, and there will be the certificate attached to the file; if he goes off duty ill or anything of the sort his file will be brought to light, and I will see it.

2795. Mr. CONNINGTON: I would like to have the name of the man.

2796. DEPUTY-PRESIDENT: The witness has not got a record of the man's name. This is necessarily a matter upon which you will need to examine. I am only getting the first impression of the knowledge of the witness.

2797. Did you examine this man personally?—No. He was merely off five days. That was the certificate he furnished, and then returned to work.

2798. Do you accept certificates without demur of any kind?—Yes.

2799. Was he due for compensation of any kind?—No.

2800. Was he paid his wages during absence?—I assume not.

2801. The man was really accounting for his absence from duty only?—That is all.

2802. That completes the series of three cases that indicate lead-poisoning, out of a group of 16,700 cases of illness?—Yes, occurring since January of last year.

2803. Can you take us back over the nine and a half years of your experience, and say how many cases of lead-poisoning you have had notice of?—I have no record such as I have given, prior to January of last year. I can only speak from general memory.

2804. Is there no record at all to which you can refer?—No.

2805. Will you give us the effect of your knowledge as the result of experience, as to the incidence of lead-poisoning in the Railway Service?—I should say the incidence which has occurred in the last twelve months is about the average of the last nine and a half years, speaking from memory.

2806. There would be an average, then, of about two cases a year?—Something like that, that is, medical certificates of cases.

2807. From all classes?—Yes, from all classes.

2808. The incidence of the disease has never been important enough to justify you in making a special examination of those who were regarded by their own medical practitioners as suffering from it?—No. There is only one case that I remember. I may say in all these cases when they come in and see us in the office, they are sent down to the Board of Health to have a urine examination for the presence of lead.

2809. How often do they come in to be examined by the Railway medical officer?—Any case of illness occurring in the metropolitan area in the wages staff where a man is off longer than fourteen days, is required to go up for examination.

2810. And when the certificate of the private practitioner suggests lead the excreta is subject to analysis?—Yes. In no case have we ever been able to discover any lead in the urine.

2811. How many examinations of this particular kind have you made in your experience?—Sometimes from memory, probably not more than five or six in the nine and a half years.

2812. In what percentage of actual cases, according to medical theory, of lead-poisoning, would you expect to find traces of the metal in the urine?—I cannot give the exact figures of the text books, but I know it occurs in a considerable number of cases, something over 50 per cent.

2813. Do you use any other laboratory test?—No.

2814. Were you surprised to find that a case of lead-poisoning occurred amongst fettlers?—It is certainly an unusual thing.

2815. Your experience did not indicate a case might be drawn from the ranks of fettlers, prior to the occurrence of this case?—No. I cannot remember, in the time I have been there, a case which could unequivocally be set down as lead-poisoning, without any shadow of doubt.

2816. You are not prepared to admit, then, that there has been a single case of lead-poisoning in the Railway service during your nine and a half years of experience?—I have not met with one that I can say was definite.

2817. Have you arranged the occupations in the service for medical purposes in a way other than that adopted by the Railway Commissioners for industrial purposes?—No, we do not range our patients at all. They are not classified at all as regards occupations.

2818. Not the patients, but the employees in their ordinary health; do you classify them in any way at all for medical survey purposes?—No.

2819. Is there anything in the nature of a medical survey made by the Railway Commissioners of the health of their employees—whether according to occupation, or not, does not matter for the moment?—There are certain figures taken out showing the incidence of ill-health amongst the employees.

2820. You have morbidity and mortality figures to which you can refer?—Yes.

2821. Are they published?—No.

2822. Are they likely to throw any light upon an inquiry directed to ascertain whether “white-lead as used in the painting industry is so injurious to painters or other workmen engaged in the industry that it is advisable or expedient to restrict or prohibit the use of white-lead in paints or pigments.” My question is whether the morbidity statistics that you have in your possession are likely to throw any light upon the subject of the questions raised in the reference to the Board that I have just read to you?—No, not beyond those I have given.

2823. Do your morbidity statistics deal with the employees in their occupational groups?—No.

2824. We cannot ascertain from them whether the painters are subject to illness more frequently than are men of other occupations?—No.

2825. Have you studied absenteeism in the service, from a medical standpoint?—Yes.

2826. What is the effect of your study?—In what direction?

2827. In the direction of indicating whether a particular class of men are more prone to absent themselves from work than other occupational classes?—We have no definite figures to show it. We have our own impressions. It was alleged some time ago that tram-conductors were more liable to pneumonia than any other class of employees. Figures were taken out then to show they were not.

2828. Figures were taken out to show what were the exact facts of the case, and in effect, those figures showed that tram-conductors were not more liable?—Yes, that they were not any more liable to pneumonia than any other class of employee. We take no figures out regularly unless there is some special call for them.

2829. Would it be possible to work up your figures to indicate the morbidity condition of affairs, within a reasonable period of time?—I do not think so. There are so few, to get any reliable figures it would have to extend over some years.

2830. Have you ever advised the Railway Commissioners as to the ingredients he should use when manufacturing or mixing his paints?—No.

2831. The question of the composition of paints has never been raised from a medical standpoint, in the service?—It has never been referred to the Medical Officers' Branch in nine and a half years, and I do not think ever before that, either.

2832. Mr. CONNINGTON: With regard to the health of the painters employed by your Department, a man employed in any work has to pass the doctor before he is engaged, has he not?—Yes, generally speaking.

2833. A man, to get work at all, passes the doctor before he is employed?—Apart from casual workers.

2834. Are you sure the casual painters, the man who is on the temporary staff, have not to pass the doctor?—I said a man is not employed longer than

one month without passing the doctor. He has to do so then to continue his employment.

2835. Can you get the report of the medical officer you referred to?—Which report is that?

2836. I presume he keeps a record of the men who have come before him under that rule?—Yes.

2837. You are quite sure they have not to pass a doctor before they commence work?—I am speaking subject to correction, but I think what I have said is the rule. Of course, in many cases they come before they do a tap of work; but that is the rule. You will understand that in the country they have to put a man on without, and he works perhaps some weeks—

2838. Take the metropolitan area?—It does not matter whether it is in the country or the metropolitan area—they all come to us for examination for employment.

2839. Does the country porter, for instance—a boy put on in a country town as probationary porter—present himself for examination in Sydney?—Yes, unless he belongs to Broken Hill or Lismore, where we have made arrangements for local doctors.

2840. So that practically your experience is a direct and not an indirect experience through other doctors?—That is so.

2841. MR. CONNINGTON: Would painters engaged in the metropolitan area have to pass through your hands before being employed?—Yes, under that rule.

2842. Do you know how many permanent painters there are in the service?—No.

2843. You do not know how many there are in the metropolitan area?—No.

2844. If a painter presented himself and you found him suffering from lead-poisoning?—We would turn him down.

2845. You would not give him employment?—No.

2846. MR. CONNINGTON: That is the difference between private employment and employment with the Railway Commissioners, Mr. Deputy-President.

2847. WITNESS: I may say no painters have so far been turned down as suffering from lead-poisoning.

2848. MR. CONNINGTON: It is, as a matter of fact, common knowledge that the private employer does not submit his men to this examination.

2849. DEPUTY-PRESIDENT: I think, on your suggestion, that organised labour resists medical examination in all other services but Government circles.

2850. MR. MANNING: This is all imagination. When it goes down in the notes you are apt to forget that Mr. Connington said it, not the witness.

2851. MR. CONNINGTON: I think the witness stated just now—

2852. DEPUTY-PRESIDENT: You asked a question, received an answer, and then made a comment. It is better to avoid comment at this stage. You can make as much comment as you like, later.

2853. MR. CONNINGTON: Take the case of these temporary employees—first they get a certificate before you start them. Assuming that during their employment they take ill, is it necessary for them to report their illness to you?—The painter would be on the wages staff, as I said when I commenced. All employees who are off sick longer than three days require to furnish a medical certificate, and I see that certificate.

2854. They are not paid, are they?—Mr. McEvoy, the witness last in the box, gave you the facts with regard to that. The wages employee is not paid for illness, but is paid for accident.

2855. Notwithstanding that, he has to account for his absence?—Yes, by furnishing a medical certificate.

2856. DEPUTY-PRESIDENT: Perhaps this witness is unable to speak definitely upon that point. It is inconceivable to me the Commissioner should refuse to pay for industrial sickness when that industrial sickness is a matter upon which an employee can claim compensation under the Act.

2857. MR. CONNINGTON: He can only claim for lead-poisoning when he gets a certificate that he is actually poisoned through the use of lead.

2858. DEPUTY-PRESIDENT: That is so; he must show he is poisoned. But we are talking more particularly with reference to lead-poisoning in its various manifestations.

2859. MR. CONNINGTON: And they might suffer from colic, anæmia, headaches, &c.

2860. DEPUTY-PRESIDENT: Would you suggest that they are not conditions of lead-poisoning?

2861. MR. CONNINGTON: I suggest the men are not aware that they can claim compensation.

2862. DEPUTY-PRESIDENT: But they have to go to the doctor. It is not a case of a man being unaware, but of the man and the doctor both being unaware that these things are to be associated with a man's trade.

2863. MR. CONNINGTON: If they have to report after three days, it alters the position.

2864. Tuberculosis is a complaint regarded by the medical fraternity as being connected with the painting industry, is it not?—It has no specific and definite connection.

2865. But do not the statistics show that painters suffer very largely from that disease?—I do not know what the figures show, but painters do suffer from tuberculosis; but whether more so than any other occupation I cannot say. I have not seen the statistics, but they may do so.

2866. You do not know if they suffer more than other classes, or otherwise?—No.

2867. MR. WILLINGTON: But all cases of sickness come before you and you distinguish between those connected with their pursuit, and those not so connected?—We can only take a certain case and say possibly a certain illness is connected with that man's occupation. We can say generally in the metropolitan area there are not many workmen who, where they think there is a chance of compensation, do not hang on to it. They may possibly, in the far country districts where they are not so up-to-date. That is my general impression.

2868. MR. CONNINGTON: This painter you found to be suffering from lead-poisoning?—?—And he was certified to be suffering from lead colic.

2869. A medical man certified to that effect, and in the absence of evidence to the contrary we can presume he knew his business?—Yes.

2870. Is that man now an employee of the Commissioner?—I do not know.

2871. How long was he in their employ before he took ill?—I cannot say that.

2872. You do not know anything of that man's age?—No. If it will help the Board I will see if I can get more particulars of that case.

2873. MR. CONNINGTON: I would like further particulars.

2874. DEPUTY-PRESIDENT: I think you should, Dr. O'Reilly. You will be able to find the paper if the man makes a claim subsequently. It is of importance we should get as much information as we can from you on this point for public purposes, and I would like you to regard our request as of equal importance with any claim for compensation that the man may make.

2875. WITNESS: My difficulty is to get on to that file of papers amongst our stock.

2876. Mr. CONNINGTON: The case was in May of this year?—But now it has been put back on to the man's file it is just as hard—

2877. Do you not keep monthly records?—Ours are individual files.

2878. DEPUTY-PRESIDENT: If you know the man's name, you can find the file with ease.

2879. Mr. CONNINGTON: There are only forty-three altogether in the whole of the State, according to the evidence of the other witness.

2880. Was this a metropolitan man—?

2881. DEPUTY-PRESIDENT: Why do you suggest he should be one of the forty-three?—He may be one of the 400—one casual man.

2882. Mr. MANNING: He may be one of the 16,000.

2883. Mr. CONNINGTON: He might be one of the 150 or 200.

2884. Mr. MANNING: This witness will do his best to get the file, and that is all he can say about it.

2885. WITNESS: I will do my best to get the record for the Board.

2886. Mr. CONNINGTON: You spoke of another class of employee, who, after fourteen days, had to be examined. Are they wages men?—I do not know if that statement is quite right.

2887. I have a note here, "Employees off more than fourteen days are required to be inspected"?—Not necessarily. They are required to be inspected in the metropolitan area.

2888. That is true about the metropolitan area, is it?—Yes.

2889. Would they be the wages men?—Yes.

2890. And the salaried men also?—Yes.

2891. Do the salaried men have to report after two or three days' absence?—Yes, the same rule applied to casual and salaried men as to absence from work for more than three days.

2892. DEPUTY-PRESIDENT: Then we will expect to hear from you when you can put your hand upon this file you have referred to. You will use every means of recovering that file, will you?—Yes.

2893. I appreciate your difficulty. Without the name of the man it will be an onerous job?—When these certificates come to me and I am flitting over them a thousand a month, if I see anything likely to lead to anything, I take it out and put it with that man's file.

2894. Will you start first with the forty-three employees, and have it looked up?—If Mr. McEvoy can give me the names I will do that.

2895. Will you communicate with Mr. Woodham and tell me when you have recovered the papers?—I will.

(Witness retired.)

FREDERICK GEORGE MENDEL, sworn, examined by BOARD:—

2896. DEPUTY-PRESIDENT: What are you?—A house-painter and decorator.

2897. Are you in the railway service?—No, private service.

2898. Have you been employed in the trade?—I have been an employer in a small way.

2899. Throughout your experience?—No, an employer for the last three years.

2900. Were you previously an employee?—Yes.

2901. For how many years did you work at the trade as an employee?—I cannot definitely say, but I have been brought up amongst it practically all my life.

2902. What age are you now?—About 34. I suppose I started when I was about 18.

2903. Have you been away from the trade for any period of time?—I suppose about two years altogether, off and on.

2904. You have lost two years. What was your occupation when away from the trade?—I was doing a bit of bush work.

2905. You were not handling paints?—No.

2906. What has been your experience with respect to illness in the painting trade?—I have never been examined by a doctor, but I had constipation and blood pressure, causing headaches, and I have always put it down to lead. It is the general knowledge amongst the outside trades that every painter to a certain extent carries lead.

2907. Mr. MANNING: That is dangerous kind of stuff to come from this source. He has a vague sort of idea that because he is constipated and has headaches—

2908. DEPUTY-PRESIDENT: He has diagnosed himself as suffering from lead and has given the reason for that diagnosis. Surely nothing could be more useful?

2909. Mr. MANNING: Or more dangerous.

2910. DEPUTY-PRESIDENT: The witness offers himself as a patient, and then gives the reason for assuming he is a patient. If the reason is bad, the evidence falls. It seems to me it is better not to check the witness in that particular connection.

2911. Have you consulted a medical practitioner at any time as to your health?—No.

2912. Have you had experience of illness, attributable to lead-poisoning, amongst your employees?—No.

2913. Have you been in association, as a fellow employee, with painters who have been suffering from lead?—No, never.

2914. Mr. CONNINGTON: You are a master painter?—Yes.

2915. I understand from your conversation with me the other day that you use what are known as non-poisonous paints?—As far as possible.

2916. How much of your business is done with those paints?—Two-thirds, just at present—the last twelve months.

2917. Why do you not use all non-poisonous paint?—I know lead is poisonous and the other is not, and as far as I can use the non-poisonous substitute the better for myself.

2918. How do you know lead is poisonous?—It is generally recognised amongst the trade that lead is a poisonous substance.

2919. A question was asked you just now if you had ever been associated with employees suffering from lead-poisoning, and you said you had not?—We see the employees. They generally come and tell you they are leaded, and I can only take their statement. I cannot say if it is a definite case.

2920. Every one knows you can only take their statement. Can you give us some of your experience with other employees or with persons following the painting trade?—I do not think I can tell you anything like that, because I have not gone into it. I have seen employees, but I could not say, unless I had a definite chat, that I knew.

2921. Do you regard painting as a healthy trade?—No, I do not.

2922. Why not?—Because lead is a poisonous substance, and I think any-one working amongst poisonous substances has a chance of getting poisoned.

2923. Have you felt any effects yourself?—Only what I have told the Board—constipation and headaches. I put it down to that, but have not had medical examination, so cannot say definitely.

2924. Do you use zinc oxide paints?—Yes.

2925. You just said it is better for you to use these paints. In which way is it better?—Because they are known as non-poisonous substitutes.

2926. But from the financial point of view?—There is no difference at all. From my experience the only difference between the two is in the using of the white colour. It might take a little more zinc to body up.

Where there are pigments in the paints there will be no difference in the cost.

2927. From a health point of view you think it is better for you; and from a financial point of view, except in the case of white oxide, you are no worse off?—No.

2928. You employ two or three men?—Yes.

2929. Has any sickness ever occurred amongst them?—No.

2930. With respect to the paint you use, do you ever use zinc oxide paint for outside work?—Yes.

2931. And for inside work, of course?—Yes.

2932. What has been your experience with that paint;—is it as durable as lead paint?—I am not in a position to speak of the durability, because I have only been using zinc for twelve months, and I do not think that is a fair test. As far as the working of it is concerned, it is equally as good as the others.

2933. Do you know whether the painters, those you have come in contact with, the operatives, prefer zinc or lead paint?—I could not say that, because I have never spoken to them on the subject.

2934. I mean for the purpose of working. Have they ever raised objection to the oxide of zinc or said, "I do not like working with lead paint"?—I have not found anyone object to anything at all.

2935. They generally take what you give them?—Yes.

2936. You said with the lead paints you got headaches, attacks of constipation, and so on. Does that ever occur when working with the zinc oxide paints?—No.

2937. Do you feel in better health?—Yes. Where there is a lot of flat colour used a man is liable to get headaches whether there is zinc or not.

2938. You have had about fourteen years' experience with lead and twelve months with zinc oxide?—Yes.

2939. As a matter of preference, taking health and other things into consideration, which would you prefer to work with?—The zinc.

2940. Are you really convinced that painting with white-lead is dangerous?—It is just my own opinion. I think it is dangerous. If lead is a poisonous substance there must be a certain amount of danger to the community, and to the painter also.

2941. Would fourteen years of experience lead you to say, from what you know or have heard from other men in the industry from time to time, it is an unhealthy or a healthy trade?—The painting trade is an unhealthy trade.

2942. You are conscientiously satisfied with that?—Yes.

Cross-examined by Mr. MANNING:—

2943. You have been in the trade sixteen years altogether, most of the time as an employee, but portion as an employer?—Yes.

2944. During that period, where have you carried on operations?—In and around Sydney.

2945. Around the eastern suburbs?—All over the place.

2946. Where have you done most of your work?—I have done a lot out Mascot way. It would be hard to say where I have mostly done it.

2947. Have you done a considerable part of it out in the eastern suburbs?—I have not done too much of it.

2948. But you have done a good deal, I suppose?—I could not say that. I would have to look it up and see where I have done my work.

2949. Where have you done most of the work during the last three years?—Around Mascot, Rosebery, and Waterloo.

2950. I think you said two-thirds of your work is done with zinc oxide?—For the last twelve months.

2951. What proportion of your work was done with it prior to that?—None. I did not use any zinc oxide at all.

2952. When you are using the lead, you use it both for inside and outside work?—Yes.

2953. Can you tell me whether the inside work is more or less frequent than the outside work—whether there is more of it or less of it than outside work?—It all depends upon the class of work. If you take a brick cottage—

2954. I am asking you to review the whole of your experience as a painter. Have you done more, or less, inside than outside work?—On the average, more inside work.

2955. There is a very substantial margin in favour of inside work, is there not?—Yes, but not with the use of lead.

2956. I am not asking you anything about lead. I simply ask you whether you have not done a great deal more inside work than outside work?—There are different classes, where there is no paint used. I am taking it generally.

2957. Have you done more inside work, or outside work, in painting?—More inside, on the average.

2958. And a very substantial margin in favour of the inside?—Yes.

2959. What has been the character of the inside work;—has it been wood-work as well as walls, woodwork alone, walls alone, or what?—Both wood-work and walls.

2960. I imagine from one's knowledge of the interior of a building, there would be substantially more woodwork painting than wall-painting?—Yes.

2961. It would be about ten times as much?—Yes.

2962. When you have been painting the woodwork, as distinguished from staining and varnish, have you generally used lead for that?—Yes.

2963. You will see the room in which we are. How much lead would you say was used in that work?—You are asking me a big question. I cannot answer. How many coats do you mean?

2964. Is there any here at all?—There is no lead in that brown coat [*indicating wall*].

2965. Is it, or is it not, a fact that very largely now inside work is done by staining and varnishing?—Yes, it is.

2966. Is it, or is it not, a fact that this zinc oxide is used for walls and as a substitute for papering, &c.?—Yes.

2967. You have mentioned the use of zinc oxide for outside work. Have you applied any tests to the outside work you have done, to distinguish between zinc oxide and lead?—No, I have not.

2968. Have you ever examined under a microscope the result of zinc oxide on outside work?—No, I have not.

2969. How long have you been putting zinc oxide on the outside of buildings?—For twelve months.

2970. But no longer than twelve months?—No.

2971. Have you worked under specifications?—No.

2972. Just job work?—Yes.

2973. Have you never supplied specifications yet to a builder for painting the outside of his house?—Yes. I can produce those specifications. I will do so.

2974. In any one of those specifications have you used the expression "zinc oxide"?—Yes.

2975. Will you be good enough to produce those?—I will.

2976. As to this illness you suffered from, the chief symptom is constipation, accompanied by headache?—Yes.

2977. Are you still suffering in that way?—No, I am not.

2978. You have spoken about the illness you have observed amongst other painters;—what would be their symptoms?—I do not think I spoke about illness I observed amongst other painters.

2979. I understand you to say they were all sick and you noticed illness amongst them?—I do not think so.

2980. DEPUTY-PRESIDENT: I think the witness told me, in answer to a question, he had never been associated in work with a man who was ill—a painter.

2981. Mr. MANNING: I thought that in answer to Mr. Connington, he was endeavouring to describe some illness—

2982. DEPUTY-PRESIDENT: His theory is that all cases are sick men, but he has never been working in association with painters who have been sick.

2983. Does that fairly represent what you told me?—Yes.

2984. Mr. MANNING: How do you fix your zinc oxide—what are the ingredients?—Practically the same as lead, only that I do not use terebene.

2985. DEPUTY-PRESIDENT: Do you distinguish between terebene and turpentine?—Yes.

2986. What is the difference?—I can only tell you the difference in the colour, that is all.

2987. Mr. MANNING: Do you mix zinc oxide with the raw linseed oil?—Yes.

2988. Does it dry all right?—It is slow drying.

2989. But it ultimately dries all right?—Yes.

(Witness retired.)

GEORGE WILLIAM BAGNALL, sworn, examined by BOARD:—

2990. DEPUTY-PRESIDENT: What is your occupation?—I am controller of stores, Water and Sewerage Board. I have been in that position for two years.

2991. And before you were appointed as controller?—I was assistant controller for, I suppose, ten or twelve years, and then I was principal book-keeper for two years; then I came back as controller two years ago exactly.

2992. Do your duties enable you to state how much lead paint is used by the Water and Sewerage Board?—Yes. I have the figures here which can be taken as a reasonable approximation in twelve months. I have shown the oils separately, in case you required them.

2993. These are memoranda to enable you to give your evidence?—Yes.

2994. Will you give us the effect of the computation you have made—the bases, first; give us the effect of the document first, and then I will ask you such questions as appear to be necessary;—over what period of time have these computations been made?—Twelve months. I took the figures from April, 1920, to April, 1921.

2995. In that period how much zinc oxide or white zinc have you used?—69 cwt. 3 qr. 14 lb.

2996. Mr. MANNING: There is one thing you call white zinc, and zinc white?—Rectified zinc white.

2997. DEPUTY-PRESIDENT: Are those combined in the figures you have given?—Yes.

2998. Mr. MANNING: Combined, how much did you use?—69 cwt. 3 qr. 14 lb. Of white-lead we used 19½ cwt.; red-lead, 13 cwt.; red oxide, 29 cwt. 1 qr. 14 lb.

2999. DEPUTY-PRESIDENT: “Red oxide” of what?—Oxide of iron. All the rest is made up of simple colouring matter, and oils and spirits.

3000. So that the information you have given us represents the consumption of bases in paints over a period of twelve months?—Yes.

3001. So far as pigments are concerned, you have used: Oxford ochre, 1 cwt. 2 qr.; yellow ochre, 1 qr.; Turkey umber, 1 cwt.; burnt umber, 7 lb.; burnt sienna, 2 cwt. 2 qr. 7 lb.; ultra marine blue, 1 cwt.; Brunswick green, 1 cwt.; bronze green, 5 cwt. 21 lb.?—Those are actually the purchases during that twelve months. We may have had a little surplus from the previous year. I noticed one item, burnt umber, 7 lb. They may have had some from the previous year to go on with.

3002. Then "black" is also 7 lb.?—We do not use much of that.

3003. So this does not represent consumption, but actual purchases in that period?—Yes.

3004. That is the estimate of your needs for a period of twelve months?—Yes, and I think that taken all round it would be a reasonable approximation of our consumption.

3005. It would approximate very closely the actual consumption?—Yes. The proportions of white-lead and zinc may not be maintained in future consumption. In the last two years we have been buying more zinc white. I do not think it is a matter of health, but of relative values. We get it considerably cheaper, but now values are coming closer together the matter will have to be reviewed to see if we will use one or the other.

3006. Do you find one spreads better than the other?—I am not acquainted with that and cannot speak absolutely; but I was talking to the architect in regard to the matter on Saturday, and he seemed perfectly satisfied with the oxide.

3007. Provided you can get it at the price at which you have been getting it?—Yes.

3008. What is the difference between 1 cwt. of zinc oxide and 1 cwt. of white-lead?—What we call the rectified oxide white is now 70s. per cwt. The last purchase I made of white-lead was 76s.

3009. At those relative prices, it is preferable to use zinc oxide?—I would not say that. I advised the engineering branch on the business, and have drawn their attention quite recently to the prices coming closer together, and asked them to go into the matter to see which gives the best value. The last lot of white-lead I bought was 76s., but there was another zinc oxide at 84s., second quality, and a little over 100s. first quality; so you can pay different prices for the zinc oxide.

3010. That is, a quality different from the rectified zinc oxide you mentioned in your document?—I would not like to speak as to relative values or qualities, but we get rectified at 70s.

3011. As to the pigments as distinguished from the bases, can you say whether there is any lead—in which of the pigments?—I am not an expert on that, but I do not think there is any pigment—

3012. It is a matter upon which you prefer not to speak?—That is so.

3013. With reference to the consumption of oils and spirits, we have to take these with the same reservation as applies to the other figures?—These are purchases subject to others?—Yes.

3014. You have used: Terebene, 2 cwt. 1 qr. 21 lb.; turpentine, 7 cwt. 1 qr. 7 lb.; raw oil, 32 cwt. 14 lb.; and boiled oil, 53 cwt. 1 qr. 16 lb. To what extent has your consumption of white-lead and zinc white varied relatively in the course of your experience during the last ten years?—I have only had actual experience for the last two years.

3015. But, as assistant to the controller of stores, did you not actually have the experience of the controller of stores?—Not exactly, but to some extent, yes. The zinc white we have been only using extensively during the last two years. Prior to that we used white-lead. I am speaking now from memory.

3016. Has the question of the effect upon the health of the men been raised, to your knowledge, in connection with the use of white-lead?—I

have not heard of any sickness, but, of course, our medical officer can speak of that.

3017. I am asking you as to your own knowledge?—I was speaking to the architect in charge of these men on Saturday, and he said the man who mixes the paints had no sickness; and that is the man who ought to have it.

3018. I must confine my question to your own knowledge of the condition of health of the men using the paint. You have not met any man in the employ of the Water and Sewerage Board, handling white-lead, who has suffered from illness attributable to the use of that?—No.

3019. Have you, as controller of stores or as assistant to the controller, been in direct personal contact with the men who mix and use the paints?—No.

3020. Who draws supplies of paints from the store?—Chiefly the architect in charge of those men.

3021. And to whom is delivery made?—To him—to the staff of the architect.

3022. What further figures have you there?—I do not think there is anything further here.

3023. Have you the consumption of varnish there?—The purchase, 59 gallons in the year. A lot of that went for electrical work, I think, armature varnish.

3024. Upon what other points have you prepared yourself to give the Board information?—There is nothing else. I was only asked for the amount of paint used.

3025. Has the consumption of paint by your Board increased greatly, in your experience;—is there a tendency to an increase in the consumption of paints?—I certainly think it will increase, because the works are extending and buildings are going up from time to time, and the maintenance of those buildings has to be carried on. There is a general expansion, I assume.

Examined by Mr. CONNINGTON:—

3026. Do you come in contact with the operatives?—No.

3027. With regard to the class of work, is there much indoor work?—I could not say the exact proportion of indoor and outdoor. A lot of it goes on vent shafts—the big chimneys that go up.

3028. Would there be much for buildings, do you think?—A fair quantity.

3029. They would be your own buildings?—Yes.

3030. Are your buildings painted inside throughout?—Both inside and out, I should think; I could not say definitely. It does not come under me.

3031. With regard to the outdoor work, is rubbing down with the usual processes carried out?—I could not say that.

3032. But to your own knowledge, the use of zinc is becoming more popular with you?—All I can say is that they seem perfectly satisfied with it. I think they purchased it in the first place about two or three years ago as a matter of relative value in comparison with the cost of white-lead. The bulk of it since has been zinc white and they have been satisfied with that.

3033. I think you told the Deputy-President that the use of it is increasing. They are using more of it?—What I intended to say was that the use of paint generally is increasing.

3034. DEPUTY-PRESIDENT: Yes; the witness told me that because of the expansion of the Board's work there must have been a tendency to a gradual increase in the use of paints.

3035. Mr. CONNINGTON: Not the zinc paint?

3036. DEPUTY-PRESIDENT: No; the use of paints of all kinds.

3037. Mr. CONNINGTON: Not zinc particularly, but all paints?—That is right.

3038. DEPUTY-PRESIDENT: The witness made himself perfectly clear on that. For the past two years there has been a tendency to use a very considerable amount of zinc white as against white-lead.

3039. Mr. CONNINGTON: That is how I understood it.

3040. DEPUTY-PRESIDENT: Naturally. The zinc white was not used until two years ago. In the past two years they have been using at the rate of 60 cwt. of zinc white per annum.

3041. Mr. CONNINGTON: As against 69 of white-lead?—No.

3042. DEPUTY-PRESIDENT: Two years ago no zinc white was used at all. In the last two years they have used zinc white so freely that in the year just concluded with April last they have used 3 tons of zinc white, and they have only used 19 cwt. of white-lead, or less than a ton.

3043. WITNESS: I might perhaps correct that statement in case it may lead to misunderstanding. I believe two or three years ago they did use some zinc white on the 72-inch main. I was only speaking from memory at the time, and I did not mention that. I do not remember any other zinc white being used beyond that.

3044. DEPUTY-PRESIDENT: How many years ago would that be?—Perhaps two or three or four years ago. I think they used it from time to time on that particular main. When I made that statement to you I meant for general purposes.

3045. Mr. CONNINGTON: You believe that the zinc white is regarded as doing quite satisfactory work?—Yes.

Examined by Mr. MANNING:—

3046. I think you spoke about the determination of the Board two years ago to alter the policy with regard to paint. They were then faced with a large increase in the amount of paint generally to be used?—No, there was not a large increase.

3047. I mean two years ago their activities extended?—No, the activities have been gradual right through since the constitution of the Board.

3048. Do you suggest that the Board did consider the increased expenditure two years ago arising from the increased activities of the Board?—No.

3049. At any rate, two years ago the use of zinc white increased?—Well, the zinc oxide was brought under our notice at a reasonable price, a price much below the price of white-lead at the time; we gave it a trial; we had it analysed, and it gave satisfaction.

3050. I mean, the first consideration with you was the relative price of the two?—That is so; the relative price and the relative value.

3051. And you determined then to give it a test?—Yes.

3052. Is it correct to say that you are still testing it?—Well, I should think after two years it would still be under test.

3053. DEPUTY-PRESIDENT: I think we had better put in this paper as an exhibit. The information is tabulated in it in a convenient form. [*List of paint ingredients purchased for the use of the Metropolitan Board of Water Supply and Sewerage for the year ending April, 1921, marked Exhibit No. 2.*]

(Witness retired.)

CHARLES PHILLIP BLOOM, sworn, examined as under:—

3054. DEPUTY-PRESIDENT: What are you?—Foreman painter at Garden Island.

3055. How long have you been in that position?—About seventeen months as foreman, but previous to that I was charge hand there for over five years.

3056. What is the position of a charge hand as compared with that of a foreman?—Well, the charge hand takes charge of a gang of men, and is

responsible for them and looks after them. The foreman is, of course, the head of the painting.

3057. The foreman is over all the painting?—Yes, he has charge of the charge hands and painters, too. The charge hands take charge of jobs with a certain number of men.

3058. And you held that position for five years, prior to your appointment as foreman?—Yes; I think it was a little over five years. I was appointed charge hand there at first.

3059. What are your duties as a foreman?—I have general things to do, the same as any other business place; to look after the men and the material and the job, and give estimates.

3060. When you speak of the material do you mean the store of paints?—Yes; I have to give estimates.

3061. Estimates of the paint needs for the year?—No, not for the year, but for the actual jobs that are going on. We draw that from the store. I have to make out the usual chits and give vouchers.

3062. Do you keep the paint that is required on a particular job in a subsidiary store under your own control?—We have a shop there, and we draw a certain amount for a job. We estimate it as near as we can, and if there should be a surplus I return that either to the store or to another job.

3063. What is the condition of the paint that you draw;—is it ready for spreading?—No; we mix all our own.

3064. That is, you draw the ingredients, mix them in the shop, and prepare them for the use of the tradesmen in the shop?—Yes; we have been doing that right through.

3065. What are the ingredients issued to you for paint-mixing work?—It all depends on what work it is.

3066. For ship work?—We have a varied amount of work. We have ship work and steam barges, and motor launches, and things like that; and we have flag poles and all that sort of work. We use a variety of stuff.

3067. Do you do a considerable amount of work on buildings?—No buildings at all. All the buildings in Garden Island come under the Federal Public Works Department. We just do the shipping—like the naval work.

3068. Having described the various classes of work that you do, will you tell us what ingredients you use in mixing paints for each of those classes if there is any variation?—There are just the ordinary variations of painting. We do a lot of plain painting, flattening, enamelling, varnishing, and so forth.

3069. Upon boats of all sizes?—Yes, all sorts.

3070. Is there any difference between the exterior work and the interior work—the inboard work and the outboard work?—Yes, there is a vast difference in that.

3071. Do you do any outboard work?—Very little outside work. On a destroyer or cruiser we do very little outside work. The shipping people mostly do that, and, if necessary, the dockers and painters do the outside—the hulls and things like that.

3072. In the case of a small boat like a launch, do you do the whole of that?—Yes; it is brought on a slip and we do it.

3073. You do all boats that are brought on a slip?—Yes, and others we do also, like the "Penguin"; that is the deck work and all on deck, but not the hulls.

3074. When you are doing inboard work on all boats, do you use lead in the paint?—Yes, we use a lot of lead.

3075. Invariably?—Yes.

3076. Do you ever use any substitute for lead?—No. If we are flattening we use zinc white; for getting up a ground for enamelling we use that sometimes with lead mixed.

3077. In your experience, zinc is not substituted for lead where lead can be conveniently used?—Well, we have never used very much zinc except for the flattening and that. For big surfaces, where it is all painting, we use lead.

3078. Have you been a painter yourself?—Yes.

3079. And have worked in the painting trade?—Yes.

3080. For how long?—About forty-one years I have been at the trade.

3081. You have not been in the naval establishment all that time?—No, I have only been there close on seven years.

3082. Where did you serve your apprenticeship?—I served my time in Carlton, Victoria.

3083. What age are you now?—I am 57.

3084. When did you commence?—When I was about 16; between 15 and 16. I was out of my time when I was just under 21.

3085. Then where did you work?—Then I went to Kew, and was there for about four years at Kew Asylum. I was head painter there. I got that appointment soon after I was out of my time. Then I left there and was on the fields in Western Australia for pretty well thirteen years.

3086. As a painter?—Yes. Then I have been in other places; I have been to Fiji.

3087. Have you ever left your trade?—Yes.

3088. For what period of time did you leave it?—I was away from it for a little over three years at one stretch.

3089. Altogether what would be the length of your absence from the trade?—Taking it all in I should say about seven years, I should think.

3090. How long is it since you have been absent from the trade?—About eleven or twelve years.

3091. You have not had a break in the continuity of your work in the last twelve years?—No.

3092. And of that period how long have you been in the Naval establishment?—Between six and seven years now. I could not tell you the exact date I joined.

3093. What has been your condition of health?—Very good.

3094. Consistently all through?—Yes, right through.

3095. Have you ever suffered in any way from lead?—No, I have never suffered from lead myself.

3096. Have you used leadless paints to any considerable extent in the course of your experience as a painter?—No; we have used a lot of water-coloured paints, like distemper and kalsomine.

3097. Have you worked exclusively in distempers and water paints for any length of time?—No, not for any length of time. When I used to do house-painting I might get perhaps three or four days of water-painting, but the majority of the time I would be on with oil colours mixed with paper-hanging and things like that.

3098. What has been your experience at Garden Island with respect to the health of the employees in the gangs you control?—Fairly good. Of course a good many men have gone away sick, but whether from the effects of the lead or not I could not say. Our work has been altogether different over there. I would like to explain to you that during the war we used to have transports there, and we used to work sometimes from Monday morning until 10 o'clock on Saturday night—Saturday afternoon and Saturday night, too. The men have gone away sick. They have been amongst the paint all the time, and they have gone away sick, probably from the effects of the lead.

3099. Have you had occasion to inquire into the cause of the illness of the men in your gangs?—No. If a man comes to me and says he is sick or thinks he has been sick through the lead, he has the right to go to see the

doctor, and he gets a certificate of sickness, and after that he gets treated outside. He is allowed three days to send in a certificate from outside to say whatever the cause is.

3100. That is, when a man has been absent for three days you expect to receive from him a medical certificate showing the cause of his absence?—Yes; that is the rule.

3101. Do you actually receive the certificate yourself?—No; it does not come to me; it goes to the office, as a rule.

3102. Are you referred to in connection with it;—do you see the certificates?—No.

3103. Is it exceptional or usual for a painter to be absent from his work in a period of a month?—Do you mean away for a full month right off?

3104. No. Would you, as a foreman painter, think it exceptional or usual for a man to absent himself from work for a day or more than a day in the course of a month?—There are cases, the same as in any other trade. We have absentees in every trade over there right through the place.

3105. I merely use the reference to the month as a means of simplifying the question?—Do you mean to say, would a man average a day or so a month right through the year absence?

3106. I did not intend that. I was going to ask you that later. Would it be extraordinary for a painter to lose a day a month?—They do not do that—not up there. I do not know of any who has lost a fortnight in the year. There might be an exceptional case where a man might lose more than that in twelve months.

3107. Do you regard painters as men of such precarious health that they should be expected to lose time?—Painters, taking them as a whole, are, I think, fairly healthy.

3108. Then your answer to my question is no, you do not expect a painter to lose time any more than a man in any other occupation would lose time?—No, I do not think so.

3109. What has been your own experience;—what time have you lost as an operative painter?—In what period?

3110. Any period you like to choose?—The last six or seven years I do not expect I have lost more than a week or eight days. That was through influenza; I had influenza twice, and had to stay away.

3111. You are speaking of the period during which you were a charge hand?—Yes, charge hand and foreman.

3112. A charge hand, I take it, is not quite so close to the paint as an operative?—No; he can go away where he likes practically, out in the open air, and like that.

3113. He is not working with a brush?—No; he just walks about and looks after the men.

3114. Mr. COOPER: Does he not mix the paint?—No. We have a colour man to mix the paint, if it is any decent job at all.

3115. DEPUTY-PRESIDENT: I want to ask you the question with reference to the time during which you were using the brush and mixing the paints. Would you have lost time frequently when you were a brush hand?—Not frequently. My time extends over such a long period that I cannot remember properly. I probably had a day or two's sickness now and then, but through general causes I expect.

3116. You did not attribute your absences from work to the cause of lead?—No. I was always very careful of myself and looked after my health.

3117. In what way did you take care of your health?—Keeping my hands clean and changing my clothes, and all that sort of thing.

3118. Have you been a milk-drinker?—I drink milk.

3119. In order to protect yourself from lead?—No, I have never done that, although I believe it is a good thing.

3120. How many painters would there be regularly employed in the work you control at Garden Island?—Very few this last few months, but during the war we have had our men vary there a lot; sometimes we would have 180 on, and other times seventy or eighty, and at other times forty. I expect that right through the war they would average fifty or sixty a day.

3121. So that one may say that the foreman would have the control during that period of fifty or sixty men at all times on the average?—No, not lately; you would for five years.

3122. During the period of the war?—Yes.

3123. Since the war?—A little while after the war was finished we were pretty busy, and I think we had seventy or eighty men on then. There were two or three ships which came to be reconditioned, and we got the job.

3124. How long after the war did that work cease?—That ceased about twelve months ago, pretty well.

3125. In the last twelve months, what would be the average number of painters employed at Garden Island?—Taking the twelve months, I should say about eight. At the present time I have only two men. I only had one up till last Wednesday. I have two on now. Of course, we are very quiet now, and there are only two there now. Of course, I did not know what I would have to answer when I came here to-day; I was simply told to come here to-day, but I did not have any particulars of what would be wanted, or I might have got some other notes. I was simply told to come here this morning at 10 o'clock.

3126. You are giving the Board the kind of assistance it requires. What is the procedure when a man feels he is ill and has absented himself from work at Garden Island for three days;—he goes to his own doctor?—If he goes to his own doctor and sends a certificate within those three days—

3127. But must he go to his own doctor for a certificate, or can he go to a naval doctor for a certificate?—If he came to me and said he felt bad I would tell him that he could go and see the doctor if he liked. He might think he would be all right in a day, and that it would not be worth while.

3128. But if he had been absent for three days?—He could not see the naval doctor then. He would have to see a doctor outside. The Government refunds him the money for that certificate if it is all right, so he is under no expense for that certificate.

3129. Having obtained a certificate, he sends that in to the office?—Yes.

3130. Is he then sent for in order that he may be examined by the naval doctor?—No. When he is well he comes back again. Then he is sent up to the naval doctor.

3131. When he returns to work he is examined by the naval doctor?—Yes; we just tell him to go up there as a matter of form.

3132. Who is the naval doctor who does that work?—There is some new man there, and I do not know what his name is. He has not been there very long, and we have had no cases like that lately.

3133. Mr. COOPER: The doctor is resident on the island?—Yes. Dr. Connolly, I think, is the name.

3134. DEPUTY-PRESIDENT: Would he be attached to the ship?—He is attached to the sick bay.

3135. Is he on the roll of a ship?—Yes, he would be, I expect. His residence is on the "Penguin," where nearly all the shore officers stay.

3136. That is, the men who are on Garden Island are supposed to be on the "Penguin"?—Most of them have quarters there. That is, the shore officers.

Examined by Mr. CONNINGTON:—

3137. At the present time there are only two regular employees?—Yes, we have two at present, besides myself.

3138. For the last five years, how many regular employees have you had employed?—In the last twelve months I expect they would average about eight. You see, I have no figures or anything with me; I came here unprepared.

3139. I am speaking of the painters under your charge?—Quite so.

3140. In a general way, you would know pretty well how many there are?—I should think in the last twelve months it would average eight right through.

3141. And for the five years previous?—Roughly, on an average about fifty or sixty. Sometimes we would have 180 men on for a day.

3142. But you have regular painters, have you not; men on the staff who are not put off?—There is no one on the staff except myself.

3143. All your other employees are liable to be put off at any time?—Yes.

3144. And as a matter of fact they are apparently put off at any time?—Yes.

3145. DEPUTY-PRESIDENT: And the strength of the painting staff has averaged eight in the last twelve months, and prior to that averaged between fifty and sixty?—That is as near as I can go. I am not giving anything definite.

3146. Mr. CONNINGTON: You might have 100 men this week and another 100 next week—different men altogether?—Yes.

3147. A man is engaged for his job and then discharged?—Yes.. He might have two days, perhaps. We might have fifty or sixty men on for two or three days, and then they would be discharged, and perhaps the next job another lot of men would come in, and not one of the same.

3148. Then we may take it that you employ practically all casual labour for the painting work?—Yes.

3149. Some of them are ship dockers and painters?—No, I do not employ any of those. These are dockers and painters there, but that is another branch altogether.

3150. You are professional painters?—Yes.

3151. With regard to illnesses, if those casual men are off for a few days, and they come along and see you, you do not send them to the doctor as a matter of practice?—If they are off for two or three days they could be discharged then. That is the rule, that any man absent without a doctor's certificate for three days is dismissed.

3152. Does that apply to casual hands?—It applies to anyone at all except the permanent staff.

3153. If he comes to you, you would say, "All right, make a fresh start"?—No, I could not say that if he is away over three days. That would lie with the authorities.

3154. If one of your men was away for three days you would not put him back on your own responsibility?—No, not on my own responsibility. I might perhaps go and ask for him to be put back.

3155. But you would not necessarily ask for a doctor's certificate before you put him back?—It is an understood thing that they should get a doctor's certificate.

3156. That is the rule, but it is not observed usually?—It is pretty well observed.

3157. But it is not observed generally; there are exceptions to it, are there not?—There might have been an exceptional case or two.

3158. However, you do not pay while they are off?—No.

3159. Would there be any chance of you supplying a record of the number of men who have been off during the last twelve months on the ground of illness?—I could do that.

3160. Could you without much trouble compile a list giving the names of the men and the periods they were off through illness during the last twelve months?—I do not keep the records, but I think I could get that for you.

2161. DEPUTY-PRESIDENT: Is it not better for us to get somebody who keeps the records to give us the information?

3162. Mr. CONNINGTON: Does anyone keep the records?—Yes. If a man is sick I mark it down in the book as “absent, sick,” or “absent.” They have all the records of the different men in the office. I have nothing to do with that at all.

3163. DEPUTY-PRESIDENT: I propose to ask Mr. Bloom to inform the Resident Medical Officer that the Board desires him to attend for the purpose of giving evidence as to the prevalence of lead-poisoning amongst the painters at Garden Island in the course of the past five years. If the medical officer is new to the work I assume that there will be a medical record indicating the experiences of his predecessors. I propose to ask Mr. Bloom also to request the gentleman in charge of the office records there to provide us with any information he may have as to the absences of painters owing to illnesses of all kinds.

3164. Mr. CONNINGTON: You use some zinc oxide?—Yes.

3165. What do you use for the officers' cabins?—For the deck heads, zinc oxide with a little lead in it, but not much.

3166. What are the deck heads?—They are called ceilings in the ordinary way.

3167. And the walls?—They are enamelled walls. We mix the oxide and the lead for flatting generally; we use some of each.

3168. DEPUTY-PRESIDENT: Is it a lead enamel or a zinc enamel?—It is a zinc enamel. We get all our stuff from the old country.

3169. Mr. CONNINGTON: All the officers' cabins are done in zinc enamel?—Yes.

3170. What do you do with regard to the crew's quarters?—The main decks are half and half—half oil and half enamel.

3171. That is a mixture of enamel and paint?—Yes.

3172. It is pure enamel for the officers' cabins?—Yes.

3173. And the other is enamel diluted with what painters call colour?—Yes.

3174. That is mixed with what we call white-lead?—Yes.

3175. In the case of the crew's quarters there would be about 10 per cent. of colour and the rest pure enamel?—No, we do not do that, because they are done pretty frequently. We use about half and half.

3176. The material put on the crew's quarters is called enamel paint?—It is enamel paint, but it is what we call half and half.

3177. Is it not a dilution of about 10 per cent. of lead?—No, we do not make it that good for those quarters; we use about half of each.

3178. DEPUTY-PRESIDENT: One-half is zinc enamel and the other half is white-lead paint?—Yes.

3179. Mr. CONNINGTON: What is used for the deck houses and bridges?—All lead colour; but we do not do them; the dockers do them.

3180. Of course, the iron work is lead?—Yes, red-lead and white-lead.

3181. With regard to the dockers, you do not know anything with reference to the sickness amongst those men?—No.

3182. DEPUTY-PRESIDENT: What is the engine-room done in?—Enamel, as a rule.

3183. Zinc enamel?—Yes.

3184. Mr. CONNINGTON: Most of your internal work is done with zinc enamel?—Yes, on the ships.

3185. And the outside is pure lead?—Yes, and lead colour.

3186. At one time it was the rule at the Island to inspect the employees by a doctor before they were employed?—Yes. Every man who came on was put on for two days and put off again, and if he came back again he would have to be examined by a doctor.

3187. That was the rule up till when?—At the time of the transports coming in they knocked that off.

3188. I suppose there was a scarcity of labour?—Well, they had to get 120 or 130 men in our department. In others there might be 800 men come in on one day.

3189. And it was practically impossible to examine them all in one day?—Yes.

3190. Prior to the war it was the practice to examine all painters?—Not only painters, but all men employed on the Island—carpenters, plumbers, shipwrights, and everyone else. They went under a pretty severe examination at one time.

3191. Are there any records of those examinations?—They would have the records, I expect.

3142. MR. CONNINGTON: Mr. Deputy-President, perhaps it might be considered advisable for some gentlemen to give their evidence?

3193. DEPUTY-PRESIDENT: Presumably if a man is put on to the pay-roll he is sound. The examination is for the purpose of determining whether he is or is not sound. If he gets employment, presumably he is sound. You would not ask for the record of his initial examination, would you?

3194. MR. CONNINGTON: No, but of the rejects. For my purposes we would have to know the number who applied, the number accepted, and the number rejected on account of illness.

3195. DEPUTY-PRESIDENT: Possibly, but those examinations are not made at one time. They are made every day.

3196. MR. CONNINGTON: And some of the same men several times.

3197. DEPUTY-PRESIDENT: Possibly. If there are statistics on the point we might have them.

3198. MR. CONNINGTON: I know the danger there might be to either side.

3199. DEPUTY-PRESIDENT: You see, the examination for exclusion is not necessarily an examination that identifies the cause of the ill-health of the person who is excluded.

3200. MR. CONNINGTON: No, it might not be.

3200½. DEPUTY-PRESIDENT: A man may not be up to par; the fact is recorded that he has been excluded on account of indifferent health. Some cause may be assigned, but probably the doctor who assigns the cause will say, "That is the ostensible reason; there may be much else wrong with the man, which I do not need to identify." For instance, a man may be excluded because he is anæmic. The doctor may not go further than that. Well, anæmia may be due to a hundred causes.

3201. MR. CONNINGTON: Quite so. The only thing is, that if in examination the number of rejects in the painting trade was much greater than in any other trade, you could draw an inference from that. You will not act on that inference, but still all these things help.

3202. DEPUTY-PRESIDENT: I do not know why we could not act on the inference to a certain extent, but where is the record of the effect of such an examination?

3203. WITNESS: I am afraid there will not be record of those things. When the men came on they went before the doctor, and the doctor would either pass them or not pass them. I do not think there is any record of what he was suffering from.

3204. MR. CONNINGTON: I was assuming that they might have kept a record of the number of persons examined each day, the number rejected, and the number passed.

3205. DEPUTY-PRESIDENT: Perhaps the gentleman in charge of the records might also be asked by you whether there is a record of the number of persons excluded from employment in the different occupations?—Very well.

3206. Mr. CONNINGTON: You have never suffered yourself?—No.

3207. Have you ever had any of the smaller illnesses usually attributed to the trade?—No.

3208. Have you ever suffered from headaches?—No, I never suffered from a headache in my life.

3209. You are quite satisfied no illness came to you?—Not to me.

3210. Have you met cases during your experience of men who have been leaded?—I could not say definitely leaded, but I have heard that they were leaded.

3211. Have you met cases of men suffering from lead-poisoning in any form?—I have had men go away and say they have been badly affected through the lead. I would not contradict them. I would say it was from the effects of the lead itself.

3212. I suppose you are not prone to contradict a man who says he feels sick as a result of his work; say a painter says, "I feel a bit off to-day," you would not suggest that he was scheming or anything like that?—No. I would not suggest anything of the kind. If a man came and said he was sick and wanted to go home he could go home.

3213. Have you met many cases of men who have come to you and said, "I feel a bit queer to-day, and I'll knock off"?—Yes, they have come to me many a time.

3214. Has that happened frequently amongst painters?—Yes, it has happened at times. Two or three in one day have come and told me they were a bit off. They may come back the next morning and they may not come back for two or three days perhaps, or longer.

3215. I suppose the tendency for men to take ill at their work is greater in confined places than where the work is done outdoor?—Yes. A man would not feel so well working in a confined place as he would if he were working in the open. We have some very nasty jobs over there sometimes.

3216. And I suppose occasionally you hear of men having to knock off work after commencing at it?—Yes, they have had to knock off; they have said they were not too well. They have said they were not too well, and that was the end of it. I could not stop them from going away.

3217. Mr. MANNING: You say you have some very nasty jobs to do at times?—Yes.

3218. What is the nature of those jobs?—Take, for instance, magazines of a destroyer. We have had them—not lately—but up to a few months ago.

3219. I imagine that would be both arduous, and the circumstances under which the work was done would be the least favourable?—Yes; it would be a confined place with no ventilation.

3220. DEPUTY-PRESIDENT: What medium would you use in that work?—We have been using a white-lead paint in our place. They want to be done out as well as the places that can be seen for sanitary purposes, too. Of course, there is a lot of valuable stuff kept in it.

3221. Mr. MANNING: You have told Mr. Connington that where men tell you they are sick and cannot work, you take their word for it?—Yes. I would not work a man if he said he was sick. I would not argue the point.

3222. You would say, "Very well, go?"—Yes. And simply stop his time from the time he left.

3223. You were asked about the use of zinc oxide for internal painting, and you indicated some of the places where it was used in the ship?—Yes.

3224. With those exceptions you use exclusively lead paints?—Yes. Mostly lead at our place.

3225. Take, for instance, the officers' cabins; those are places that are very frequently done, are they not?—Not so much lately, but they did at one time. There was more work done two or three years ago than there is now. They are cutting things very fine now.

3226. They are not putting on fresh coats as frequently as they used to?—No.

3227. When did that form of retrenchment start?—It started a long time ago. There was no money in that. It took them all their time to hang on with the fewer men.

3228. Would you say that there had been that form of retrenchment for a year?—Not quite a year.

3229. During the last couple of years how frequently would the officers' cabins get a fresh coat of paint?—About twice a year, I expect. That all depends on whether the ship was in.

3230. Would the same apply to the engine-room?—No. The engine-rooms we very seldom do. The crew generally does that.

3231. Do they use the zinc oxide for that?—They use the lead, the same as we do, and enamelling, too.

3232. What is it you said you used the oxide for?—Flatting mostly.

3233. For what part of the ship?—If we were getting up a ground for enamelling, we would use some zinc in our lead.

3234. May I take it it was only the officers' cabins practically that you used the zinc oxide for?—No; for enamelling; they are all finished with enamel.

3235. All the paint that you finish with enamel you use the zinc oxide?—No, we use enamel. It is an imported enamel of the usual standard colour, and enamel that we have been getting for years and years from the old country.

3236. But it is only when you are enamelling that you use zinc oxide?—No; we use the zinc oxide for flatting on the deck head, or the ceiling, as you call it. If we are getting up a ground for the skin of the ship or the cabins sometimes, we would use it there, and sometimes lead and zinc mixed, and enamel on top of that as a finish.

3237. So you really do not always use zinc oxide when you are enamelling.

3238. DEPUTY-PRESIDENT: I asked the witness that question rather earlier.

3239. Mr. MANNING: I thought there was a mistake made.

3240. DEPUTY-PRESIDENT: Probably. Let us clear it up.

3241. I suggested in an earlier question I put to you that all pure enamel was made upon a zinc basis?—Yes, and I understand it is made from zinc.

3242. DEPUTY-PRESIDENT: You see, Mr. Manning, the confusion arises from the fact that there are two kinds of enamelling, first-class enamelling and second-class enamelling. The second-class enamel is made from an adulterated enamel of zinc and lead mixed.

3243. Mr. MANNING: Yes, I gather that from what the witness said.

3244. With those exceptions, the paints you use are always lead paints?—Yes.

3245. And really that is the real paint, is it not?—How do you mean the real paint?

3246. Take, for instance, weather-resistant paints?—Yes, we would always use the lead and nothing else for there, and never have used anything else since I have been there.

3247. And that has been your experience over a large number of years.

3248. Before you went over to Garden Island you had had considerable experience as an operative painter yourself?—Yes.

3249. I suppose in the course of your experience you did a good deal of mixing paints?—Yes, a lot of it.

3250. When you were mixing them would you mix them from the powdered white-lead?—No, not in powder form.

3251. You never used it at all in a powdered form?—No.

3252. It was always in a paste?—Yes. We do use powdered white-lead in some instances, but taking it as a whole it is mostly in the paste.

3253. The instances where you do use it are negligible?—Yes.

3254. With regard to rubbing down and preparing surfaces for fresh coats of paint, I suppose you have had a good deal of experience of that in the past?—Yes.

3255. Has your experience been that of dry rubbing down, or has it been wet, or both?—It all depends on what you are using it on. If you are using glass-paper you use it dry; if you are using pumice-stone you use it wet or dry. In a good many cases where the work is bad, you use pumice-stone and water.

3256. Supposing you have a surface which you want to rub down, is it very material whether you do it dry or wet?—Well, it is all the better wet if you want to cut it down. The pumice-stone will clog on the dry stuff.

3257. So that in all cases really where you want to rub a surface down it is better to do it wet?—Yes.

3258. It gives you a cleaner surface to go upon?—Yes, it cuts it down a bit.

3259. When you are rubbing down dry have you ever noticed any danger of inhaling any of the dust which you create?—No, I have never felt any effects from it myself.

3260. I think you have drawn the attention of the Board to the fact that you always observed strict rules with regard to cleanliness and with regard to washing your hands, and so forth?—Yes.

3261. I take it that was with the object of preventing paint from getting into your mouth?—Your nails and that. The general run of painters do the same thing; they generally look after their hands and that.

3262. You have overalls?—I did at one time.

3263. And it is important to attend to them and see that they are kept clean?—Yes.

3264. Mr. CONNINGTON: With regard to rubbing down, could you rub down new painting. The between coats cannot be rubbed down with pumice-stone, can they?—No. I am speaking of old work.

3265. There is dust flying when you rub it down with pumice-stone?—Yes.

3266. And there is dust from the pumice itself?—If you rub it dry the dust will come away a lot. In fact, it is mostly that dust that comes.

3267. Is it usual to rub down the old work dry at your establishment?—No; mostly wet. That is my experience.

3268. But you do some of it dry?—It would not be very bad if you did it dry. If you want to cut the stuff down you do it with water.

3269. Mr. MANNING: Can you give any idea to the Board of the amount of white-lead and red-lead that has been used at Garden Island during the past five years?—No. I could give it to you, but not to-day. I have sent as much as 2 tons of lead out to jobs in one day.

3270. Mr. MANNING: Perhaps those figures might be obtained, Mr. Chairman.

3271. DEPUTY-PRESIDENT: I was going to ask Mr. Bloom to inform the office control (whether it be administrative or naval, I do not know, but whoever it may be) that the Board would be glad to have from the office such information as can be supplied with regard to the consumption of lead during the past several years, and the absenteeism amongst the operative painters, and the records of illness suffered by the same class?—Very well.

3272. Then we will combine with those records the information that the

doctor can give us as to symptoms and diagnoses?—Would you like to have the doctor present?

3273. Yes, we would like to have the doctor present as well. Mr. Woodham will communicate the desires of the Board, to those gentlemen, but we will ask you to warn them that the Board is about to invite them to attend to give us information along the lines I have mentioned?—It might be a day or so before they would be able to get everything in proper order.

3274. Mr. MANNING: There is one matter which suggests itself to me. The witness was told that we would be glad to know the number of operatives in each particular branch of industry over there who were rejected. I take it that would not be of use without giving the causes also.

3275. DEPUTY-PRESIDENT: I am afraid there is no record. I did not dare to ask him to mention that matter. Mr. Woodham can, when he is putting the general requirements of the Board to the office, inform them that if they have statistics with respect to rejections we shall be glad to receive them in evidence.

3276. Mr. MANNING: I suggest this, with the object of saving them unnecessary labour, because I should imagine they would have to go to a considerable amount of work to get the number rejected. It occurred to me that it would not be of any use at all to us unless we got the causes of rejection. If they are told that, and they cannot give the causes, they need not bother to do the work.

3277. DEPUTY-PRESIDENT: Unless we have statistics assigned to causes we cannot get any substantial help from the examination of men who apply for employment. We want statistics over a considerable series of years to justify us in making a request for any information.

3278. Mr. CONNINGTON: Yes. I saw the danger of it, as I pointed out. The only thing is, one likes to know everything on the subject. When the information was before you you would assess it at its proper value and reject it if it is unsuitable.

3279. DEPUTY-PRESIDENT: It is not fair to ask an office, that has a complete tale of duty to perform, to set aside its work for the purpose of making up for us anything that is not likely to be of value to us. If we can say that some information compiled now, and for our purposes, will give us the key to any problem that we may have to handle, then it would be quite proper for us to ask that that information should be compiled; but if we are fishing merely, if we say do this or do that, in order that we might find out after you have done it if it is of any value to us, it is hardly fair to the person to whom we make the request.

3280. Mr. CONNINGTON: I agree with that. It may be fishing, and if it entails a lot of work I do not suggest that we ask for it; but if the record is there and can be got at without any real trouble then we ought to have it. I would not even now suggest that you should act upon it, because, after all, it may show that of the people applying there were three times as many boilermakers rejected as there were painters, or *vice versa*. The thing may not then be accepted by you as reliable. If the information is there and can be got by extracting a few totals, I suggest that we have it; but otherwise I say it is a fishing excursion pure and simple.

3281. DEPUTY-PRESIDENT: We will make inquiry, and if there are statistics showing the effect of examinations of men who apply for employment we will ask that those statistics be given to us in the course of evidence.

3282. Mr. CONNINGTON: I ask for no more than that. Another thing is to be kept in mind, and that is that these men are coming and going every day in the painting trade, and it may be that they have kept figures or they may not have. One can understand that when you are not following the same people for six months at least any information you get that way will

have to be worked from very guardedly. You must be very guarded about using any information you get in respect of persons who are here to-day and gone to-morrow.

(Witness retired.)

Mr. MANNING: I have a cable here on the subject of French law. We cabled for information and received a reply. I might hand that to you.

DEPUTY-PRESIDENT: I think this is quite fair information to put before the Board in the way of evidence as the best evidence that you can give on the matter, and I think that evidence should take the form of evidence by the person who sent the cable and received the reply.

Mr. MANNING: The gentleman is here and can give that evidence now.

JAMES KEITH MORICE, sworn, examined by Mr. MANNING:—

3283. What position do you hold?—Manager for M. H. Laughlan & Company, Sydney.

3284. What is the business of that firm?—Colonial representatives for manufacturers in Great Britain.

3285. DEPUTY-PRESIDENT: Manufacturers' agents?—Yes.

3286. Mr. MANNING: And amongst other things the manufacturers of white-lead?—Yes, we represent Locke, Lancaster, and W. W. and R. Johnson and Sons, Limited.

3287. Your principals in London do a very extensive business?—Yes. They are amongst the largest lead-paint ores and metal merchants in London.

3288. And they are shareholders, of course, in the British concern?—They are shareholders amongst others in the British-Australian Lead Proprietary, Limited.

3289. And I suppose they have agents throughout the world?—Mostly, yes.

3290. In France, at any rate?—Yes, they would have in France, and they are in close touch with the continent generally.

3291. Did you cause a cable to be sent to your principals?—After I heard the evidence on Friday I had this cable (of which I have the translation here) sent on to see what was the exact position.

3292. To whom was it sent?—Locke, Lancaster, and W. W. and R. Johnson and Sons, Limited, London.

3293. DEPUTY-PRESIDENT: Did you compose the question yourself?—Yes.

3294. Mr. MANNING: Where was it sent to?—It was sent to London.

3295. And they were asked to get the information?—Yes.

3296. And you also received a reply to it, and that reply is annexed to that document?—Yes.

3297. What was the question you sent?—"New South Wales Board of Trade making inquiry having regard to restriction or the prohibition use of white-lead. Telegraph immediately whether French Government enforcing law of the year 1909. We would appreciate any information with respect to what is the present position in France. Send by first post any of the very latest publications respecting discussion regarding lead."

3298. DEPUTY-PRESIDENT: That question and the code in which it is sent are set out together on that page?—Yes.

3299. What code have you used?—It is Bentley's code.

3300. Mr. MANNING: What was the reply to that?—"French prohibition not enforced. Very large imports and manufactures white-lead. Restoration 2,000 tons white-lead by Germany to France part of reparation terms."

3301. DEPUTY-PRESIDENT: By whom was that cablegram sent?—Locke, Lancaster, and W. W. and R. Johnson and Sons, Limited.

2302. And what is its date?—Saturday.

3303. To whom is it addressed?—To "Challenge," to M. H. Laughlan & Company.

3304. Is "Challenge" their code name?—Yes.

3305. And you have the answer and the code side by side, as you have the question and the code side by side?—Yes. [*Cable and translation of same sent by M. H. Laughlan & Company to Messrs. Locke, Lancaster, and W. W. and R. Johnson and Sons, Limited, of London, on 2nd July, 1921, together with reply and translation thereof, of same date, marked Exhibit No. 3.*]

ERNEST ALFRED NELSON, sworn, examined as under:—

3306. DEPUTY-PRESIDENT: What is your position?—Personal clerk to the Comptroller of Stores, Railways.

3307. I understand you have some evidence to give us with regard to the consumption of white-lead by the Railway Commissioners?—Yes.

3308. Have you got the matter tabulated?—Yes, to a certain extent, but since I have been here this morning I understand that questions will be asked me which I did not anticipate when preparing this information.

3309. Let us have the information with which you are now equipped?—Very well [*handing a document to the Deputy-President*].

3310. In the period from 1st July, 1919, to the 30th June, 1920, the railways consumed 150 tons, and the tramways 14 tons, of white-lead, making a total of 164 tons?—Yes.

3311. In the period from the 1st July, 1920, to the 30th June, 1921, the railways consumed 98 tons and the tramways 18 tons, making a total of 116 tons of white-lead?—Yes.

3312. Can you say in what form that white-lead was consumed?—In oil.

3313. And principally as paint?—Yes, as far as we know.

3314. To what extent is your information uncertain on that point?—Because when we issue it we do not know exactly what it is used for. It is no concern of ours what it is used for, but I believe it is practically all used for paint.

3315. Would you be aware of the degree to which it is used as stopping by assemblers and constructors of the steel and iron wagons?—No, we have no knowledge of the use it is put to after it leaves our store. In our schedule we have other mixed paints and zinc whites which may contain a little information for which you ask.

3316. Have you got the consumption of zinc white in the same periods?—I have only got it for the last twelve months; it was 29 cwt.

3317. That is in the period from the 1st July, 1920, to the 30th June, 1921?—No, for the year before.

3318. From the 1st July, 1919, to the 30th June, 1920?—Yes.

3319. What is the consumption of zinc oxide in that period?—Zinc white, 29 cwt. There is another item, oxide of iron paint, which contains a little lead, I understand. That is 166 cwt. Then there are the mixed paints themselves, which are ready put up in the gallon and one-sixteenth gallon tins—about 50 tons of that. That is ready-mixed paint.

3320. On a white-lead base?—Yes.

3321. Is there any means of determining what the base is?—The departmental chemist is here, and he will be able to answer these questions. In addition to that, there is a paint we call the standard grade. It is a non-poisonous paint, but I understand there is a little lead in it. There were 50

tons of that used. The figures which I give here represent the consumption during that year, and they are used as the basis for the tenders which have just been let for the supply of colours, &c., during the next year, so they represent the actual consumption of these items during the year 1919-1920. Of red-lead there were 17 tons used during that particular year.

3322. Have you got all the pigments on that paper as distinguished from the bases?—There is a specification here for white-lead only. Do you wish me to read that?

3323. Yes; will you give us the effect of that?—"The tenderer must state the name of the manufacturer, country of manufacture, and process of the manufacture of white-lead he tenders to supply. (2) The white-lead must be finely ground in the best quality of pure linseed oil, the proportion of which must not exceed $7\frac{1}{2}$ per cent. of the weight. (3) The surface of the lead, when exposed to the air without water on top of the lead, shall not become brittle or crumbly after seven days' exposure. (4) The white-lead must be of the best quality. The process by which it is made shall be branded on the packages in which the white-lead is delivered. (5) If made by the Stack process, the white-lead shall consist of lead carbonate, and not less than 28 per cent. lead hydrate, as determined by analysis on the pigment freed from oil. (6) Samples to be submitted with tenders."

3324. Does your work in connection with the control of stores enable you to give us the information which you have given us as matter known to yourself?—Yes.

3325. Do you prepare these documents?—Yes, I prepared these myself from our ledgers.

3326. Do you supply the information that is contained in these documents to the tenderers?—Yes.

3327. Do you issue the documents to those who desire to make tenders for supplies?—Yes, as a guide to enable them to tender for the next year's supplies.

3328. Could you tell the Board whether the effect of using white-lead so extensively upon the health of the employees of the Railway Commissioners has been considered in determining what stores will be required from year to year?—No, that question has never been considered by the Stores Branch.

3329. Can you say of your own knowledge that that question has not come up for consideration?—It has not, as far as I am aware.

3330. If it had been raised for the consideration of the Comptroller of Stores, would the fact be known to yourself as his personal clerk?—If it had been made known to him, yes, but the only reason for it being made known to him would be, I should think, to explain the decrease in the consumption of white-lead. That would be really the only thing which would concern us.

3331. Has there been a decrease in the consumption of white-lead?—No.

3332. Has there been an increase in the consumption of white-lead?—No.

3333. Over what period of time would you say there had been no increase or decrease?—Only the last two years.

3334. Could you tell us in relation to the last five years whether there has been a tendency to increase or decrease the consumption of white-lead?—It would depend on the amount of work that was being done. The last two years was practically the same. Although the tonnage is slightly less than for this year, that is explained by the fact that the last two months we have not ordered very much white-lead on account of a re-arrangement of our stores. If you take the two years together you will find that the average is about 120 tons, and that average has been maintained for some considerable period.

3335. You can say of your own knowledge that an average of about 120 tons has been maintained in consumption for many years past?—I would not

like to say that. I would not like to give any figures previous to the 30th June, 1919, because I did not look at those. I can get that for you very quickly.

3336. Do you know if the use of zinc oxide has increased in the railway especially in the last three years?—I do not think so. You see, there have only been 29 cwt. obtained during that one year.

3337. That may have been the first 29 cwt. that was ever used?—It may have been.

3338. Can you say, from your own knowledge of the facts, whether the use of zinc oxide is an innovation in railway circles?—No, I could not answer that question.

(Witness retired.)

ROBERT HAWKES WALTON, sworn, examined as under:—

3339. DEPUTY-PRESIDENT: What is your position?—Analytical chemist for the Railway Commissioner.

3340. Have you in that position a knowledge of the composition of the stores that are ordered by the Railway Commissioner?—The bulk of the stores.

3341. Do you check the quality of the white-lead and the paints that are purchased and put into the railway stores?—Of a number of them; of the white-lead always and a number of the mixed paints.

3342. It is the regular thing to test the quality of the white-lead analytically?—Yes.

3343. Is the use of the commodity known to you at all? When you are testing white-lead, do you test it in relation to a particular purpose or use?—No.

3344. Have you been in your present position for a number of years?—About fourteen years.

3345. Has the consumption of white-lead to your knowledge increased or decreased in railway circles?—I have nothing to do with the consumption, and I could not answer that.

3346. Do you test white-lead in consignments?—Yes.

3347. Could you say from the checks that you have applied whether the consignments have been more frequent or more extensive in late years?—Just about the same, I should think.

3348. There is a fairly consistent consumption of white-lead in railway circles, so far as consumption can be checked by you?—Yes.

3349. Do you test the zinc oxide that is put into railway stores?—Very seldom. We do not get much zinc oxide.

3350. Have you been testing zinc oxide for the railway stores for several years past?—It is some time since I have applied the test to the zinc oxide. We generally get a very good quality, Hubbock's or some known line, and we do not need to waste time by testing. We only test the doubtful ones.

3351. What would be the chemical character of the red-lead that goes into the railway stores?—I do not quite know what you mean by that question.

3352. What form of lead is it?—It is oxide of lead; two oxides really. It is PB 304 red-lead, plus litharge.

3353. Do you test the pigments as distinguished from the bases that are taken into the railway stores for painting purposes?—No; that is usually done by the foreman painter.

3354. So you cannot say which of the pigments contains lead?—No. When you mention pigments, I understand you to mean colouring agents.

3355. Colouring agents, yes?—No, I cannot tell you that.

3356. Do you know anything about the composition of the standard grade paints that the Railway Commissioners have?—Yes. That usually contains about 20 per cent. of zinc oxide, and about just under 10 per cent. of sublimed white-lead.

3357. What is the difference between sublimed white-lead and ordinary white-lead?—It is generally claimed that sublimed white-lead is not poisonous. It is really a basic sulphate of lead.

3358. It is not the carbonate of lead, but is the basic sulphate of lead?—That is so.

3359. From your own knowledge with regard to the sulphate of lead, would you say it is a poisonous mineral or a non-poisonous mineral?—I would not like to express a definite opinion.

3360. With regard to the oxide of iron paint, is that associated with lead in any form?—No. Mr. Nelson made a mistake there. It is quite free from lead. I would like to mention that we get a lot of zinc oxide in the form of mixed paints. Most of the mixed paints contain about 30 per cent. of zinc oxide.

3361. To the exclusion of lead?—Yes.

3362. What proportion of the mixed paints purchased by the Commissioners would be paints based upon zinc oxides to the exclusion of lead?—I should think about 30 per cent.

3363. What proportion of the paint used in railway circles is ready-mixed paint?—I should think about 50 to 60 tons approximately.

3364. Can you say how many tons of paint of all kinds are used per annum by the Railway Department?—No, I could not answer that. The Comptroller would be able to give you that information.

3365. MR. MANNING: I just want to ask you about those mixed paints you were speaking of. You say that an analysis of those mixed paints shows a certain percentage of zinc oxide and white-lead. Are you sure that that is correct?—Quite.

3366. Would you deny this, that the mixed paints contain 30 to 40 per cent. of zinc oxide and 60 to 70 per cent. of lead?—I never said that. I said that the mixed paints contain about 30 per cent. of zinc oxide. By that I meant to impress upon the Deputy-President that we were using more than 29 cwt. of zinc oxide in the paints. A third of the 50 tons would represent zinc oxide.

3367. DEPUTY-PRESIDENT: I gathered from you that 30 per cent. of the mixed paints bought by the Commissioners contain zinc oxide and no lead?—No; it contains lead in addition.

3368. I asked the question twice, and I put it in that form, to the exclusion of lead?—I did not understand that.

3369. MR. MANNING: I got that impression, that it was to the exclusion of lead.

3370. WITNESS: When you said the exclusion of lead, I thought you meant the exclusion of an equal proportion of lead.

3371. DEPUTY-PRESIDENT: No, I meant to the total exclusion of lead?—No, that is quite different. Lead is always present, and I think also is necessary, too.

3372. So that in the mixed paints that you have referred to as based on zinc oxide there is a greater proportion of lead than of zinc oxide?—Not always. Sometimes the proportion is about the same; sometimes more of red-lead and sometimes less, according to the class of paint.

3373. Then the proportion of zinc oxide would be very much in excess of 30 per cent.?—No. The place of white-lead is taken by other things—perhaps oxide of iron or clay, or carbonate of lime, or something of that kind. The zinc oxide remains approximately at 30 per cent.

3374. Mr. MANNING: As a rule the percentage of zinc oxide runs from about 30 to 50?—I have not got it as high as that. It is nearly always about 30 per cent. That is in the ordinary mixed points.

3375. And the rest is the lead?—No.

3376. What is the rest?—The rest is lead, plus other material. The lead varies about 5 per cent. or 10 per cent. up to 64 per cent. or 65 per cent.

3377. Take the case of the 30 per cent. oxide, what would be the percentage of lead in that case?—In one case it might be 60 per cent. and in another case it might only be 14 per cent. It varies.

3378. And you find that variation in all the mixed paints?

3379. DEPUTY-PRESIDENT: In how many paints would you expect to find the sulphate lead rather than the carbonate?—In many.

3380. Can you mention a particular line of paints other than the standard grade, in which you would find that?—Yes. We have received one containing the sublimed lead only. That contained about 25 per cent. and no carbonate of lead. There was nearly 40 per cent. of zinc oxide in that case.

3381. What was the name of that paint?—I do not know whether I should give it.

3382. Is it a proprietary paint?—Yes; it has a private mark.

3383. I do not want you to disclose the composition of any proprietary paint which may be regarded as secret—

3384. Mr. MANNING: Of course, the variation of the percentage of lead depends upon the colour?—It depends upon the colour and on the varieties.

3385. Certainly the colour?—The colour, of course, is important.

3386. DEPUTY-PRESIDENT: However, the evidence amounts to this, that there are two kinds of paint only used by the Commissioner which do not contain carbonate of lead, so far as your experience of the analyses of these paints goes?—Yes.

3387. Mr. MANNING: That is of the mixed paints; that is of the 50 tons?

3388. DEPUTY-PRESIDENT: Yes. There are three, rather. There is the oxide of iron paint—that is a leadless paint?—Yes.

3389. There is the standard grade paint, which contains the sulphate instead of the carbonate, and there is the third paint to which you made reference, the proprietary paint, which contains zinc oxide and sulphate of lead and no carbonate of lead?—Yes. The bulk of the paints contain a carbonate. I carried out some experiments a few years ago with the object of reducing the amount of white-lead, and I found that white-lead appeared to be necessary to give a good lasting coat. About a third or a little more than a third of white-lead, seemed to give the best results. So that it would appear as if it was not possible to cut white-lead out altogether.

3390. What was the form of your experiment;—did you mix the paint yourself?—No, I got a foreman painter to mix the paints. Of course, it was done on a very small scale. He weighed them out in his own way, and those were painted on a small board, and exposed. I was very much impressed with the third mixture. That was a mixture of 30 per cent. of white-lead, 30 per cent. of zinc oxide, 30 per cent. of Barium sulphate, and 10 per cent. of chalk. I thought it worth while carrying out three experiments in that direction.

3391. What was the length of that exposure?—About eighteen months to two years.

3392. Would that be regarded as an adequate exposure for the purpose of testing the paint?—Well, it is better to do it longer, but I think that one can form an opinion after that time.

3393. The painting was done on wood, I take it?—Yes, all on the same board.

3394. To what tests did you subject the panel of wood in the exposure?—It was just exposed to the weather.

3395. How did you examine the film?—I got the foreman painter to do that, and to express his opinion.

3396. You did not do it microscopically?—No. Of course it was merely a preliminary test, and I thought that later on I would probably follow it up on a larger scale.

3397. But you have not done so yet?—No, I have not had the opportunity.

3398. Have you had occasion to advise the Commissioners with regard to the effect of the use of carbonate of lead upon the health of the employees of the Commissioner?—No. The medical officer would do that.

3399. Mr. MANNING: Have you ever microscopically examined a surface painted with zinc oxide?—No.

(Witness retired.)

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

[On resuming at 2 p.m.]:

FRANK WILLIAM WILSON, sworn, examined as under:—

3400. DEPUTY-PRESIDENT: You appear here to-day to represent the Accident Underwriters' Association of New South Wales?—Yes.

3401. What is your position with that association?—Secretary.

3402. How long has your association been in existence?—Since November, 1909.

3403. When the Workmen's Compensation Act of 1910 was passed, did your association fix rates to cover insurance under that Act?—Yes.

3404. Have you information that you can give us with reference to the rates that were fixed in the first place, in regard especially to lead risks?—Do you mean people who work in lead, or work in connection with it, such as painters?

3405. Yes?—I can give you the rating. Under the 1910 Act the rate was fixed at 30s. That is chargeable on the aggregate wages. I am speaking now of painters.

3406. Against what risks did it insure the insurer?—Against all risks under the Act. That is to say, we indemnified the employer for his liability under the Act.

3407. That was an accident liability only under the 1910 Act?—Yes. It did not include this industrial sickness.

3408. The accidents to which painters were subject in 1910 were accidents of a physical kind, connected with the method of their operations, rather than with their association with lead?—Yes, accidents within the meaning of the Workmen's Compensation Act of 1910.

3409. The difficulty is this, that if a man had absorbed a handful of white-lead and had been overcome with lead-poisoning, under the 1910 Act, as long as the occurrence was in the nature of an accident, he would have been entitled to compensation. Have you a printed list of the rates that were determined upon in 1910?—Yes. [*Handing a list to Board.*] You will see painters mentioned there, 30s. per cent.

3410. I notice that the schedule that contains a reference to painters and a reference to the rate that you have mentioned, appears under the general head of contractors?—That is so.

3411. With this note: "The undermentioned classes of work must be charged for at the respective contractors' rates whether the work is carried out under contract or otherwise"?—Yes.

3412. That means that you look to contractors for your business and regard these employees as being employees who would be injured by contractors?—The rating would cover a contractor's liability in respect to painters. Say a builder employs a painter, the builder would have to pay

under that tariff 30s. per cent. in respect of his painter. On the other hand, the contractor might be a painter himself employing men, and he would pay the same rate.

3413. What were the rates for the succeeding year?—Up to 1915 that rate operated. In 1915 it was reduced to 25s. 6d.

3414. In respect of painters?—Yes. There was an all-round reduction of the workmen's compensation tariff and the classification of painters participated in that reduction.

3415. That was prior to the passage of the Workmen's Compensation Act of 1916?—Yes, that is still under the 1910 Act. In 1915 there was a general reduction of the rates under the workmen's compensation tariff, covering the employers against their liability under the 1910 Act. The reduction for that particular class of risk was from 30s. to 25s. 6d.

3416. In the year 1916 what was the rate?—The new Act of 1916 became operative on the 1st July, 1917, and the rate was still further reduced to 20s. per cent.

3417. Was the rate reduced in 1916?—No, in 1917.

3418. So that that rate in 1916 was still 25s. 6d.?—Yes.

3419. After the 1st July, 1917, there was a reduction of the rate to 20s. per cent.?—That is right.

3420. Has the rate varied since then?—Since the amended Workmen's Compensation Act came into force; that came into force on the 31st December, 1920. The liability under that amendment was increased 50 per cent., and the rate went up 33½ per cent.—from 20s. to 26s. 6d.

3421. And the rate to-day stands at that figure?—Yes.

3422. Does the Accident Underwriters' Association record the experiences of the members of the association in connection with risks incurred by insurers?—No.

3423. How, then, does it fix rates?—It is not within my knowledge, but I think it is highly probable, and I believe it to be the case, that the different companies keep their own statistics. Those rates are fixed on the experience generally of the members, and that experience is determined by meeting.

3424. The members record their own experience, and meet and confer in the light of individual experience upon the subject of the rates that ought to be fixed?—That is right.

3425. No record is made by the association of the opinions then expressed, and of the reasons for the individual companies holding that opinion?—No. A conference would be called and the members exchange opinions derived from their own experience and by majority vote the rate is revised or left intact, according to how the conference may go.

3426. But the association does not record the expressions of opinion?—No.

3427. Or the reason for the holding of the opinion?—No. It simply records what is decided by the meeting. You see, one member's experience may be totally different to that of another.

3428. In order to inform itself with regard to the experience of risks under the Workmen's Compensation Act, this Board must seek information from the individual members of your association?—That is the only way. You could not get it from the association, because we have no record.

3429. Who are the members of your association?—There are about seventy-five of them altogether. I can give you a list of them at any time.

3430. Are their names recorded in this book?—No. I could give your secretary a list.

3431. Are they all companies of the same order of importance in the insurance world?—That is not for me to say. Some companies do a much larger business than others, and in that sense one is, for your purposes, more important than another, but I could not indicate them.

3432. Have you any knowledge yourself of the experience of the companies in connection with lead-poisoning?—No, I have not. In my position I hear opinions expressed, and therefore anything I might say would only be second-hand, and I might be expressing the opinion of one member, and that member's opinion might be quite different from that of somebody else. If I were to put that forward as an opinion of the members of the association, it would not be correct.

3433. There has been no expression of opinion on the part of the association itself with respect to the risks connected with lead-poisoning?—No. So far as I know from the facts before me, I should judge that the members consider the risk simply a normal one. I am only expressing my personal opinion. If there were anything abnormal in the risk, I think the experience of the companies would be adverse, and they would immediately confer with one another as to what would be done. For instance, if the experience were adverse with regard to that particular risk, they would say, "Well, this is not good enough; we cannot go on making a loss. We must either drop that particular risk altogether or put up the rate." Nothing of that kind has ever been done; and therefore I think it is a very fair reference to say that in their opinion they consider it a normal risk. I would not say that is the case, but the facts before me lead me to that conclusion.

3434. You are generally familiar with this book of ratings?—Yes.

3435. Can you compare the rates charged in respect of painters with the rates charged with respect to other building occupations?—They are lower. I think you will find them lower than bricklayers, masons, carpenters, and so on.

3436. Will you refer to the book and give us the rates relating to those other occupations?—I gave you the rate for painters, which at the present time is 26s. 6d. The rate for a carpenter is 30s., and the rate for—

3437. Before you leave that, will you give us the rate for carpenters from 1910 onwards?—The rate for carpenters in 1910 was 30s.

3438. What was the next variation?—In 1915 they were reduced to 25s. 6d., the same as painters. Under the 1916 Act, which came into force in July, 1917, the rate for painters was reduced to 20s. per cent.

3439. That is as from the 1st July, 1917?—Yes. Under that Act the rate for painters was 20s. per cent.; for builders it was 22s. 6d.

3440. Have you got the carpenters there?—That is including carpenters. They come under a general designation. The painters were put on one side altogether, the risk being considered less than for ordinary builders' employees. Under the 1920 Act the painters were increased to 26s. 6d., and the carpenters and other employees of builders were raised again up to 30s. That comparison stands good in respect to other employees of builders outside of painters and paperhangers. They are regarded by my members as being a risk entitled to a lower rate than the other employees of a builder.

3441. Is there any other class of worker with whom you would like to compare a painter to show the relative risks from an insurance standpoint?—No. They are all builders' employees, and I think the comparison in a sense begins and ends with that.

3442. Let me make a cursory sort of comparison with the rates generally, and check me while I do so. I am looking at the Accident Underwriters' Association rates for the year 1921?—Yes, I have that.

3443. I start with page 8. Employees in abattoirs are charged at the rate of 33s. 6d. per cent.?—Yes.

3444. The risks in abattoirs are regarded as greater than the risks associated with the painter's trade?—That is so.

3445. The next rate higher than that of the painters (the painter's rate being in this year 26s. 6d.) is that associated with fire adjusters with demolition?—Yes.

3446. The next rate higher than of painters is that associated with the employees of aeroplane builders, working on the ground only, which is fixed at 53s. 6d.; and other employees (that is, working in the air, I take it) at 400s.?—Yes. Those rates are, of course, what might be called sporting rates at the present time, because there is not sufficient experience to show what is a fair rate.

3447. Then we may discard those as rates to be compared with those we are discussing. The next rate is that of clerks of works and other employees supervising building operations; that stands at 30s.?—Yes.

3448. That is in excess of the painter's rate?—Yes.

3449. Artesian well-borers, not well-sinking, stands at 30s.? Employees in asylums for the insane, 53s. 6d.; markers at rifle ranges are rated at 84s.; professional football players are rated at 48s.; professional sporting men at 36s.; auctioneers, live-stock salesmen, 30s.; bailiffs, 53s. 6d.; blacksmiths stand on the same footing, 26s. 6d.; employees connected with blasting operations are rated at 90s.; break-water construction employees are rated at 72s.; brickworkers in pits at 36s.; bridge-builders (culvert construction, 20 feet span, see road-making), 72s.; employees connected with burning off of standing trees are rated at 106s. 6d.; builders not otherwise classified (that is including carpenters, bricklayers, and the other building trades), 30s.; building demolishers are rated at 120s.; bus, cab, and car proprietors, horse or motor, 36s.; employees in bush-clearing, 106s. 6d.; canal construction employees, 48s.; carriers and carters, 40s.; when engaged in the transference of goods on railway premises to and from trucks and other vehicles by persons other than railway servants, 36s.; cattle drovers, 36s.; cattle saleyard proprietors, 30s.; ceiling manufacturers and fixers, 30s.; hay, corn, and produce merchants, 55s. 6d.; chaff-cutting contractors (hay, corn, and produce merchants), 55s. 6d.; charcoal workers engaged in tree-felling, 60s.; chimney stack and steeple builders and repairers, 180s.; chimney-sweepers, 30s.; cinematograph picture producers, outdoor work, 48s.; circus proprietors, 60s.; coach proprietors, 36s.; coal-mines, employees engaged in handling coal on surface of mine, 30s.; coal-trimmers, 73s. 6d.; contractors for cleaning out dams and tanks, 30s.; contractors for removing marine growths from the inside of pipes used by the power-house, 106s. 6d.; crane proprietors, 96s.; decorators, 26s. 6d.; dam construction workers, 48s.; Department of Navigation employees, 50s.; detectives (private), 60s.; diamond-drilling, not on mines, 30s.; divers, 90s.; dock construction employees, 72s.; dock proprietors (no stevedoring), 48s.; drain-makers (with blasting), 48s.; without blasting, 30s.; excavators (with blasting), 90s.; without blasting, 48s.; explosives, magazines, 60s.; explosives, manufacturers, 42s.; express companies (carrying), 40s.; fencing, including tree-felling, 60s.; fire brigade employees, 30s.; fire salvagers, without demolition, 30s.; firewood merchants, with tree-felling, 60s.; with power (no tree-felling), 48s.; forwarding agents, 40s.; furniture removers, 40s.; garage proprietors (drivers), 36s.; gasometer erectors, 36s.; gravel and sand pits employees, 48s.; stud grooms, 60s.; harbour construction employees, 72s.; hawkers, 48s.; hay, corn, and produce merchants, with chaff-cutting, 36s.; hay and straw baling (trussing) plant proprietors, 40s.; horse-breakers (no racing), 72s.; horse dealers, 33s. 6d.; horse-shippers, 84s.; irrigation channel work (with blasting) 48s., without blasting 30s.; kerosene, naphtha, and benzine importers, including distributing and/or casing, 30s.; life-savers on beaches in connection with surfing, 66s. 6d.; livery and bait stable employees, 36s.; mail contractors, 36s.; marine salvagers, 180s.; marine surveyors, 48s.; masons (builders), 30s.; merry-go-rounds, switchbacks, and the like, 48s.; metal smelters, 33. 6d.; mine shaft-sinking contractors, 106s. 6d.; night-soil contractors, 40s.; night watchmen, 48s.; ore reduction works employees, 36s.; oyster leaseholders, 36s.; paper-

hangers, 26s. 6d.; pier construction employees, 72s.; pile-drivers, 72s.; planing tramway rails on tram routes, 33s. 6d.; pleasure ground proprietors, 36s.; property owners (repairs to buildings), 30s.; proprietors of hay and straw baling (trussing) plant, 36s.; racing stable employees (ex-racing), 60s.; railway employees, 53s. 6d. Are all railway employees rated at 53s. 6d.?—That is railway construction. The Railways and Tramways Department includes a special liability beyond the Workmen's Compensation Act. That includes the liability under clause 22 of the Government Railways (Amendment) Act of 1916.

3450. That is all employees, excluding the clerical staff, 66s. 6d.?—Yes.

3451. Then it says, railway construction employees, 53s. 6d.; rifle-range construction, 30s.; road-making, including culverts with a span not exceeding 20 feet, with blasting, 42s.; without blasting, 30s.; road-roller proprietors, 36s.; safe-removers, 40s. Those are persons carrying Chubb safes and others, I suppose?—Yes. You see, the range is very small there.

3452. Sawmillers other than as per (b), mill and mill yard, 60s.; (b) country mills obtaining timber in the bush (mill and mill yard), 72s.; (timber-getting, bush work, *i.e.*, tree-felling, sawing, splitting, and conveying to mill), 96s.; (timber storage yards, not mill yards), 24s.; scrub-cutting, no tree-felling, 80s.; second-hand machinery dealers with dismantling, 33s. 6d.; septic tank constructors—with blasting 48s., without blasting 30s.; sewer construction—with blasting 48s., without blasting 30s.; ship-breakers (no salvaging), 60s.; Shipping Labour Bureau, 106s. 6d., chargeable upon wages not payable by any individual stevedore, stevedoring firm or company. What does that mean? "Any employee who obtains work through a shipping labour bureau": is that because he has in the past been a non-unionist that the rate is so high?—No, there is no distinction. This was a special rate (which has practically lapsed now, I fancy) made under special circumstances.

3453. Why should the employees of shipping labour bureaux be rated so highly?—I cannot charge myself with the actual circumstances at the time, but you know what are called the loyalists, as distinguished from the unionists, were very liable to be injured, not from their employment, but because of certain conditions.

3454. The risk was greater in the case of a loyalist than in the case of an ordinary employee on the wharf?—Yes.

3455. Then you have ship-riggers rated at 36s.; silo constructors, 106s. 6d.; skating rink employees, 30s.; slate, stone, and marble yards—have already been referred to; slaughtermen, 33s. 6d.; smelters on mines, 36s., not on mines 33s. 6d.; stevedores, 106s. 6d. I think your surmise must be incorrect. Stevedores generally are on the same rate as the loyalists. Then you have stock and station agents rated at 30s.; stock salesmen, 30s.; stone-breaking and crushing, 30s.; stump-grubbing, with blasting, 42s.; surveyors in the country, 33s. 6d.; tank-sinkers, 48s.; telegraph and telephone erectors, 26s. 6d. which is the same rate as the painter; threshing machine proprietors, 40s.; traction engine proprietors, 36s.; trade-unions (as employers of course), underground men, 61s. 6d. Those are men who are employed by trades-unions to do organising and supervising work below ground; they are associated with check weighmen and certain other employees?—Yes. They have certain officials underground. They are really subjected to the same risk as miners.

3456. Then you have training wall construction employees rated at 72s.; tramways employees, 36s.; tramway construction (electric or otherwise), 48s.; tree-felling, 106s. 6d.; tunnelling, 90s.; veterinary surgeons, 26s. 6d.; watchmen on ships and/or wharves, 50s.; persons engaged in the removal of

water hyacinths and other vegetable pests, 46s. 6d.; well-sinkers, 48s.; wheat-stackers, 36s.; window cleaners, 36s.; wireless operators—exhibitors in connection with aviation, 266s. 6d.?—That is again what you might call a sporting rate.

3457. Then you have woodworkers with power, 33s. 6d.; X-Ray operators, 84s. That completes the list?—Yes.

3458. Those rates ought to represent, in comparison with the rate for painters, the estimate of increased risk that is made by the insurance companies in regard to the other occupations?—Yes. You see, there are various factors which go to those ratings. One factor is what they call the range; that is to say, the amount of wages likely to be involved. Some of those rates probably would be very much lower if there were a big wage range. For instance, if there is only a wage-sheet of, say, £5,000, the rate would probably be higher than if it ran to £50,000. I am comparing one class of work with another. In one case there are perhaps very few employees, and in another there are a great number. On the other hand, as against that, there is the hazard incidental to the peculiar work. All these things go as factors towards determining what the rating should be. The main factor, of course, is the experience.

3459. So that risks in relation to occupations are only comparable when the amount of premium to be derived from the occupations is comparable also?—Yes.

3460. I mean, the risk in relation to the rates as published in these books?—Perhaps I am not hearing you clearly.

3461. The rates as stated in these books represent the risk in relation to the amount of premium that is to be expected from any particular occupation?—That is so.

3462. Mr. MANNING: That is to say, the risk itself is to be considered. That is one factor. That is what might be called the inherent risk. The other factor is the number of people contributing in that occupation.

3463. DEPUTY-PRESIDENT: Yes, the rate has a relation not only to the risk, but to the contributions that may be taken from those who are insured.

3464. Can you refer the Board to representative companies that are likely to give it valuable information with respect to experience under the Workmen's Compensation Act?—Do you mean in general, or with regard to the particular occupation?

3465. If you can give it more particularly with regard to the building trades and painters, do so. We do not necessarily want that, but if you can refer us to companies which have a particular experience in connection with building employees, will you do so?—If I might suggest it, I would ask you to address me officially, stating that the Board is desirous of obtaining certain information and asking for the assistance of the association in getting that.

3466. I address that question to you now officially?—Yes, but if you would put it in writing and address it to me officially it would come before my committee, and no doubt my committee would then circulate it amongst the members and ascertain from them which of those would be able to give you the information.

3467. The Secretary of the Board has been in communication with your association on behalf of the Board, and has made a request that the experience of the companies should be testified to before the Board in the course of this inquiry?—Do I understand that this is what you propose to do?

3468. No; this is what has been done?—I do not think any application has been made through me to the association. I have no knowledge of it.

3469. Mr. MANNING: If I might suggest it, very probably this witness would rather turn the responsibility on to the association itself than indi-

cate any company and perhaps be charged with giving that company preference.

3470. DEPUTY-PRESIDENT: That is probably what is in his mind.

Examined by Mr. CONNINGTON:—

3471. I hear your evidence, that the charge does not necessarily mean the amount of risk run in an occupation, comparatively taken?—You mean that the charge has no relation to the risk? Decidedly there is.

3472. But the size of the industry, and the employers' business are contributing factors, are they not?—Not necessarily. As I was saying just now, in some classes of work there is very little expenditure. The wages amount to very little. For that reason the amount on which premium is chargeable is small, and therefore the rate on that particular risk might be relatively higher than they would be if the range were very much bigger.

3473. Where there are few, the pay-roll is small?—Yes.

3474. Where there are thousands it is larger?—Yes. I am speaking of in the aggregate and not in regard to any particular employer.

3475. Take the building trades: you have a price which you charge to contractors?—Yes.

3476. What do you mean by contractors; do you include master painters;—is a master painter a contractor?—Yes, he would be if he took out a contract. If he were a contracting painter—that is to say, a man who had his own employees—he would be a contractor. The rates would be charged just the same in respect to his employees as would be charged to a builder who employs painters.

3477. That is to say, if a master painter took out a policy with your company, you would charge him at present 26s. 6d.?—Yes.

3478. And if a master builder takes out a policy, you charge him 26s. 6d. with regard to painters, and 30s. in respect of other employees?—That is right.

3479. Have you any master painters with policies out of your office?—My office does not do any business at all. We are simply an association who regulate these ratings, based on the experience supplied to us by the different members.

3480. DEPUTY-PRESIDENT: Mr. Wilson represents a federation of insurance companies for policy purposes. That is, the members of the federation confer as to the rates which are to be fixed from year to year, and I suppose they confer with regard to other matters of policy also. It is better, perhaps, for the community that there should be a standard rate, than that the companies should be competing with one another. However, that is part of their policy, that they do not compete with one another with respect to rates.

3481. Mr. CONNINGTON: And all members of your association will charge at least those prices?—Yes.

3482. Are they entitled to charge more than the prices set out in the list?—If they choose, but I do not think it is likely to occur in practice.

3483. But are they entitled to charge more?—They could do so if they chose, but they would be risking their business.

3484. You mean somebody else might come along and get it?—Yes.

3485. Could you give us the name of one of your members who has taken out a policy with a master painter?—I could not tell you.

3486. When you fixed the rate for contractors, did you have in mind the master painter contractor or the master builder?—Now you are asking me for something that was in the minds of my members. I do not know. When that Act came into force in 1910, there had been no workmen's compensation in force in this State prior to that, and therefore my members, in fixing the rates, were really dependent upon what was current in other States. As

far as my memory serves me, they based their rates mainly on those current in Queensland and New Zealand, where they had had the Workmen's Compensation Act in operation for some considerable time.

3487. And you fixed a flat rate, then, of 30s.?—Yes.

3488. Later on you reduced it to 25s. 6d.?—Yes.

3489. Then you came to £1 in the case of the painters?—Yes.

3490. Now you have increased it to 26s. 6d., and the others have gone back to the 30s.?—That is right.

3491. As your schedule is regulated by the possible revenue coming from different businesses—

3492. Mr. MANNING: I object to the question in that form. That is quite incorrect. It is putting something into the witness's mouth which the witness has not said.

3493. Mr. CONNINGTON: The witness is quite competent to correct me if I am wrong.

3494. Mr. MANNING: But it is a most improper thing to put the question in that way. The result of that is that one has to constantly turn back the notes of the evidence to get the different words. Any person who undertakes to ask a question of a witness should at least take the trouble to inform himself of, and bear in mind, what the witness has said, if he is referring to past answers which were given by the witness. Otherwise it becomes a hopeless jumble of confusion in the evidence.

3495. Mr. CONNINGTON: My question is this: as the revenue likely to be derived from a business affects the price—that is what I said before.

3496. DEPUTY-PRESIDENT: You may alter your question considerably, Mr. Connington, by the introduction of a word.

3497. Mr. CONNINGTON: I thought I put that question before.

3498. As the price is affected to some extent by the revenue, do you think that factor was taken into consideration when fixing the rate for painters in the building trade?—There has been a fluctuation in the rate. I do not know, and I cannot tell, what determined each member in his view of a particular class of risk. I only see the fact. The fact is that the rate started at 30s., was reduced to 25s. 6d., and further reduced to 20s. Then, because the Act created a 50 per cent. higher liability, the rate was put up to 26s. 6d.

3499. Take the construction of a building: the time the painter would spend on the building would, I think, be considerably less than the time spent on the building by a carpenter or a bricklayer?—Probably.

3500. Do you think that would affect the rate?—Well, no, the whole thing is really determined by experience. It is not a question of whether a man works on a building so many weeks or so many hours less than another. It is the result of the contract—that is, the lawsuit involved.

3501. Say a contractor's wage-sheet is £1,000 a week, and of that amount £10 has been spent in respect to painters, and the average is about £10 all the year through; do you think that fact would have a tendency to minimise the risk in respect to painters, from your own point of view?—Well, no. You take the individual painter. My members do not look at it from the individual point of view, but take the whole of the painters and the whole of the premium revenue derived from all the painters' risks in the State. They base their experience, not upon one individual risk, but upon the whole lot. There may be one painter who paid £1,000 to his men, and from whom the companies derived a £10 premium, and that painter might involve the insurance company, or his employer, nominally in the loss of £1,000; but there are hundreds of other painters who go through without anything at all.

3502. DEPUTY-PRESIDENT: The revenue must have a relation to the number of operatives of that particular class in the State, surely?

3503. Mr. CONNINGTON: As you put it, I quite clearly understand how the rate might be struck. If you will remember, I asked the witness whether, in fixing the rate, they had taken as a base master painters who are contractors, or master builders who, in the course of their operations, employ painters.

3504. WITNESS: Might employ sub-contractors, you mean, as painters.

3505. DEPUTY-PRESIDENT: A painter's rate presumably is struck in relation to the number of premiums which will be received in respect of painters. Those premiums will have a relation to the wages paid, so that for the purposes of comparison we may perhaps fairly take the number of painters who are to be found at work in the State, in the one case, and the number of operatives of another class who are to be found in the State. The painters are separated by the rate-book from employees in the building trades generally. So are masons. The rate for masons is higher than the rate for painters. Do you think that there are more masons at work in the States than there are painters?

3506. Mr. CONNINGTON: No, very much less, I should think.

3507. DEPUTY-PRESIDENT: So that the risk in respect of masons must be very much higher. You would argue the other way. The risk in respect of masons is higher than the risk in respect of painters, because there are fewer masons in the State.

3508. Mr. CONNINGTON: I am not arguing, Mr. Deputy-President. I am trying to find out did that fact have any bearing on his association when the rate was fixed.

3509. DEPUTY-PRESIDENT: I am suggesting now that you should draw the attention of the witness to the two rates in respect of masons and painters, and draw his attention to the two concrete rates in those cases, and ask as to whether the proportion of numbers is likely to have caused the whole of the difference in the rates.

3510. Mr. CONNINGTON: Do you think that the proportion of numbers in a section such as the masons and the painters would have affected the rate at all?—You mean whether the wages paid for those particular classes of work—

3511. No, the numbers of them?—The wage is the only factor which is considered in the rating, not particularly the numbers.

3512. But the amount of wages paid to them?—Yes. The higher the wages in the aggregate—that would mean an increased number of men.

3513. Would the fact that the painter's ordinary rate of pay is less than a carpenter's, or any other trade, affect a rate?

3514. DEPUTY-PRESIDENT: By how much less?

3515. Mr. CONNINGTON: Would that affect the rate?—I do not think so.

3516. DEPUTY-PRESIDENT: There is no appreciable difference, is there, between the rates of a carpenter and a painter?

3517. Mr. CONNINGTON: I think it is about 2d. per hour now—a difference of 8s. per week.

3518. DEPUTY-PRESIDENT: Will you be good enough to tell me which companies are members of your association?—There are about seventy-two.

3519. I mean, which of the companies have representatives on the committee of your association?—The Ocean Accident Co.; the Royal Exchange; the North British and Mercantile Company; the English Insurance Company; and the Queensland Insurance Company. Those are the offices represented on my committee.

3520. Which of the companies take part in the annual conference with regard to rates?—The whole of the members of my association—seventy-five at the present time.

3521. Will you be good enough to give the Board a list of the members of your association?—Yes, I will do that.

3522. You will be required to attend to give us the list under the sanction of an oath?—Very well. I would like to attend to-morrow morning if you can take it from me then.

3523. DEPUTY-PRESIDENT: We will endeavour to do so.

(Witness retired.)

ARTHUR GILL STANTON, sworn, and examined by BOARD:—

3524. DEPUTY-PRESIDENT: What are you?—Foreman coach-painter in the Railway Department.

3525. How long have you been in the service?—Thirty-nine years. I have been approximately three years in my present position.

3526. How long have you been in the trade?—For thirty-nine years. I have been in the railway service throughout the whole of my experience as a tradesman.

3527. Have you ever left your work for any reasons; have you ever been associated with any work in which you were not handling paints?—No, only since I have been foreman.

3528. You have never been in any other position which would take you away from the handling of the brushes and paints?—No.

3529. Have you suffered any illness as a result of association with the paints, at any time?—Not to my knowledge.

3530. Have you ever been incapacitated from work for any reason?—Not recently, but about sixteen years ago I had rheumatism.

3531. How long were you absent through that complaint?—Four months.

3532. Did you associate your illness in any way with the use of paints?—No, I did not.

3533. Have you had any recurrence of that illness?—No, only twinges, but nothing to speak about. I have not had to discontinue work.

3534. Have you lost much time from temporary indispositions?—No, very little until then. Since that time I have lost, I suppose, six weeks, but that was not from rheumatism. I had piles.

3535. That is, about six weeks in the whole of the last sixteen years?—About that.

3536. When a man who is under your charge is sick from any reason, what procedure is adopted by him in informing you of his illness?—If he is off over two days he has to supply a doctor's certificate, and it is sent on. It goes then to the Railway Medical Officer. If a man furnishes a certificate after two days he is allowed to start; but if he remains off for fourteen working days he has to come before the Medical Officer.

3537. Do men connected with the coach-painting work in the railway shops absent themselves frequently from work for less than the three days?—Yes, of course, at times. I may say it is one of the best time-keeping shops in the railway—the car and waggon department.

3538. Do they absent themselves to a less extent to that of other men in the other departments in the railway shops?—It is not the best, but one of the best.

3539. DEPUTY-PRESIDENT: As a foreman, when did you begin to take notice of a man's absence?—After he is off for a day. It is reported he is off immediately after—

3540. But as to frequency?—There is a lost-time sheet comes around every period, and if a man is absent for leave more than twice—

3541. In what period?—In ninety-six hours, a fortnight.

3542. Do I understand you correctly: if a man is absent more than twice in a fortnight—?—If he is late.

3543. I do not mean late attendance; put that out of your mind altogether. If a man is absent for a whole day, for any cause at all, what notice is taken of his absence?—If there is any doubt about him at all he is questioned.

3544. If he tells you he has been indisposed you would not ask him for a medical certificate?—Certainly not; we must accept his word.

3545. How frequently would you accept his word in the painting shop?—Not too often. He is put on the lost-time sheet even though late, and may not be questioned. He is put on the lost-time sheet and it comes before me. If he is cautioned more than once you report he should be taken up and spoken to by the Superintendent as to his absence.

3546. Would you question a man's *bona-fides* if he absented himself for a day out of each month?—No.

3547. You would not regard that as exceptional?—No.

3548. Do you find that, in fact, painters are prone to absent themselves from their work as frequently as that?—In some cases they are; I cannot say all.

3549. In your own case you did not absent yourself as frequently as that?—No.

3550. Have you observed indications of illness amongst the men who are under your control?—No, not to any extent.

3551. How many men are controlled by you?—There are 266—that is the total of apprentices, painters' labourers, and painters.

3552. What class of paint is used in the coach-painting department?—It is practically all flat colours. There is very little oil in it at all.

3553. What is the base of the paint?—There is lead in some of it.

3554. How much of it is lead?—To take a thoroughly painted job there would be about 56 lb. to the coach—that is, a thorough job.

3555. And how much of that paint would be painted with a lead base?—I suppose there would be about 120 lb.

3556. When I say "lead" base, I mean a carbonate of lead base?—About 120 lb.

3557. MR. MANNING: That is a pretty good percentage out of 56 lb.

3558. DEPUTY-PRESIDENT: Your first answer was that it would take 56 lb. to complete the job—56 lb. weight of lead?—No, I would say about 170 lb. of paint. That would be to complete the job.

3559. MR. MANNING: Of which 56 lb. is lead?—Yes.

3560. DEPUTY-PRESIDENT: So lead would represent about 33 per cent. of the paint applied to the coach?—Yes. That is exclusive of the roof. A preparation goes on which used to be lead, but now the formula of which is held by the Commissioner.

3561. Does it contain lead?—None whatever. There would be 172 lb. of that alone go on the roof.

3562. MR. COOPER: Is that outside?—Yes.

3563. What do you put on the inside?—It is enamel. There are very few cars now that are not enamelled.

3564. DEPUTY-PRESIDENT: You mean the ceiling is enamelled?—Yes.

3565. The inside of a car is generally stained, when it is a passenger car, is it not?—Stained and varnished, with the exception of the ceiling.

3566. Who does the work of enamelling?—The coach-painter.

3567. Are some men working constantly on the enamel?—Only one man; he is not constantly on it, but does more than anyone else in the shop.

3568. That is, the work of enamelling is concentrated in a few hands?—Yes, practically.

3569. So the greater number of the 240 employees are continuously working in lead, with lead paints?—Yes, more or less.

3570. How many permanent employees are there in that section?—I could not exactly say that, but there are not too many casual hands there.

3571. What would you say has been the average number of painters in the coach-painting department?—

3572. Would the average be something like 240?—Easily—more.

3573. Over a series of years?—In 1918 we had 214, and there were twenty-six away at the war. They have been increased since.

3574. What would you say has been the average for the past five or six years?—I should say 240.

3575. That would be the average for as long a period as six years past?—Yes.

3576. Have you ever seen the effects of lead-poisoning amongst these men?—Not to my knowledge. There are very few men who have reported lead-poisoning—I think about five in the last three years.

3577. About five men have reported to you?—By a doctor's certificate.

3578. Do you see the doctor's certificates which are sent in?—Yes. There has only been one man off for any considerable time, and he was away something like seven months. The others have only been days. I can give you the days [*handing document to the Deputy-President*].

3579. There are five cases on the record. The first is that of E. Fletcher, who suffered from painter's colic and was off from 20th July, 1918, and resumed 6th August, 1918, a period of seventeen days?—I might say he was an apprentice.

3580. In what year of his apprenticeship?—About the third or fourth year.

3581. The second case is that of R. Steward, who suffered from painter's colic, and was off from 4th October, 1919, to 30th October, 1919, a period of twenty-six days. Was there anything remarkable about Steward's case;—was he a young man?—I suppose about 32.

3582. Has he been affected since?—No.

3583. The next case is that of H. Wilkins, who was reported as suffering from plumbism. He was off from 18th October, 1919, till 10th May, 1920, a period of seven months?—He had not been long in the shop, I think only about two and a half years. He had previously worked at the Randwick tram-sheds. To look at him, I should take him to be about 50 years of age.

3574. Was he compensated in respect of that illness?—Not that I know of.

3585. The next case was that of J. Ayre, who was reported as suffering from lead-poisoning. He was absent from 14th November, 1919, to 2nd December, 1919, a period of eighteen days?—I may say that he was not employed in the paint-shop proper. He was employed in the car-shop on miscellaneous work.

3586. But still, as a painter?—That is so.

3587. What age would he be?—I suppose about 40.

3588. The next case is that of G. Champion, reported as suffering from lead colic. He was absent from 10th May, 1921, to 16th May, 1921, a period of six days. What age would he be?—About 45. Those are the only cases I know of.

3589. Have you any knowledge of the amount of lead that passes through the coach-painting shops?—Through our shop, yes; but I cannot say outside of the car-painting shop.

3590. Is there another paint-shop?—Yes, there are the permanent-way and the interlocking paint-shops.

3591. But that is not a factory painting-shop, is it;—do the men work in the permanent-way paint-shops?—Some do, and some do not.

3592. With respect to the coach-painting shop, what is the amount of lead consumed per annum?—From July, 1919, to June, 1920, 1,189 cwt. 1 qr.; from July, 1920, to June, 1921, 392 cwt. 1 qr.

3593. How do you account for the difference?—The roof is not now done with lead.

3594. And the roof takes as much as the whole car?—More than the whole car. There was 3 cwt. put on the roof. Those are the correct figures of our consumption.

3595. What proportion of the paint used in the coach-painting shop is manufactured paint?—Only the Tuscan red—that is the body colour you see on the outside of carriages.

3596. What proportion of the paint used does that amount to;—can you give us the weight of that as compared with the general weight of lead?—There would be about 10 lb. of Tuscan red to a carriage.

3597. That is, roughly, 1-17th of the paint that goes on a carriage other than the roof is the manufactured paint?—Yes.

3598. The rest of the paint is mixed in the shop?—Yes. I want you to understand I am not referring to the interior.

3599. Quite so. You say the rest of the paint is mixed in the shop?—Yes.

3600. By whom is the mixing done?—A paint-mixer specially engaged for that, who does nothing else.

3601. Do you mean a group of men?—There are two men; one is the paint-mixer and the other his assistant.

3602. And are the two men able to keep the whole shop supplied with paint?—Yes.

3603. Have either of those men been absent from work owing to illness?—No, they are both good time-keepers.

3604. And they mix up the whole of that weight of lead—white-lead, you gave us in the course of a year?—Yes.

3605. Is there any dry white-lead used in the shop?—A little, but not too much—1 cwt. 3 qr. per year.

3606. In what process is that used?—Sometimes as a sand-paper stop, but it is rarely used.

3607. Is it mixed with something?—Turpentine, and a little gold size.

3608. By whom is the stopping mixed?—By the painter himself. He gets the dry white-lead—

3609. It is not mixed by the paint-mixer?—No.

3610. Have you any further information there?—I can show you what lead was used during 1916 and 1917, for the months of July, August, September, and October. There was then a shortage. That is how that came about.

3611. Have you been using a substitute for white-lead in paint-mixing?—Yes.

3612. What is the nature of the substitute?—We used barytes, 30 per cent., for the carriage roofs—they are not done at all now.

3613. What sort is it?—It is a white barytes. We use oxide on the waggons and the standard grade on the roofs.

3614. Then you have been able to reduce the amount of white-lead used owing to the introduction of a substitute in the form of this barytes?—I do not say that is the thing. At that time we could not get anything, and the substitute we use now, the formula, was not known. We are still using it on the waggon roofs.

3615. Which are you using?—The grey.

3616. DEPUTY-PRESIDENT: A memo. dated 29th November, 1917, says:

“With reference to the Comptroller of Stores’ memo. of the 9th instant, I give hereunder a copy of a report received from the foreman painter, dated 16th November, 1917. To show that economy has been

practiced in the issue and use of white-lead, I beg to draw your attention to the quantities issued and used for the past few months, especially since the introduction of a substitute for mixing with white-lead, as against that issued and used during the same period of last year.

	July.	August.	September.	October.
1916	163 cwt.	178 cwt.	104 cwt. 2 qrs.	177 cwt.
1917.....	92 cwt. 3 qrs.	2 cwt. 3 qrs. 3 lbs.	50 cwt. 3 qrs. 13 lbs.	103 cwt.

"With regard to our requisition for 160 cwt. placed on 20th October, 1917, this was asked for owing to the erratic supply of white-lead, as for instance, this is the 29th of the month, and only 85½ cwt. have been supplied. We have now 108½ cwt. on hand. We never allow our stock to run entirely out, but at the same time the strictest economy is practiced."

That was written on 29th November, 1917. It refers to the amount of white-lead issued and used for the past few months and the months of July to October are given. There is a memo. that—

"With reference to the attached, red oxide and standard grey paint is now being used on goods stock, and 30 per cent. of barytes is being used with white-lead on the roofs of carriage stock. I am informed that the Comptroller is receiving 30 tons of white-lead from . . .," so-and-so.

3617. Mr. CONNINGTON: How do the substitutes act?—No good. The oxide ones are not bad, but the barytes and the white-lead do not stand at all.

3618. How did that mixture you put on top of the carriage to cover the carriages with, stand?—That is good. There is no white-lead whatever in that.

3619. Inside, you use the zinc enamel?—Yes.

3620. The lead is used outside the carriages?—Yes.

3621. You prime up with lead and afterwards it is filled up and brought up with the varnish?—Yes, after the Tuscan red.

3622. With regard to the work done on the roof, do you perform dry rubbing down before putting the paint on?—No. That is not done by the painter at all. It is done by the car-builder, the cleaning-off of the roof.

3623. That is done by the car-builder in the first instance, and then the painter spreads the material on the top?—Yes.

3624. Then there would be no dry-rubbing down as far as the initial coat on the top goes?—No.

3625. None of your men have done any dry rubbing down?—No.

3626. With regard to the inside of the carriages, do you dry rub down there?—You may call it that. If there is anything needs a bit of planing off, you rub the sand-paper over it. The painter would do that.

3627. You know what the process of "rubbing-down" means, as understood in the paint trade?—Yes.

3628. With regard to the ceilings, is that work carried out to the same degree in a railway carriage as it would be in a house?—In a house, as a rule, it is plaster. No, it is not the same at all.

3629. Say there is a wall of a house of the same dimensions as the roof of a railway carriage?—I cannot understand you.

3630. A railway carriage is about 6 feet by 6 feet. Say you had to paint 6 feet by 6 feet of this wall, you would prepare by rubbing it down, would you not?—No, we would paper it down if necessary, which is not always.

3631. Would you not call sand-papering rubbing-down?—No, I would not term it that.

3632. But the trade calls it that. What do you call it?—Papering down.

3633. You are a coach-painter. We call it "rubbing-down" in house-painting?—Yes, it would be done where necessary.

3634. With regard to the paint used on the roofs of carriages, as a painter would you say it is harder or less pleasant to use than the ordinary lead-paint?—It is about the same.

3635. I suppose you cannot say whether the risk to the painter from the health point of view, is greater or lesser when using this substitute than when using the lead-paint?—I think the same risk is attached always when working in a shop, no matter what material you are using. I reckon the risk is equal all through the day, no matter what you are doing, unless you are working in a very closely-confined compartment.

3636. In a closely-confined space you think the risk is greater?—Yes, I think so.

3647. Otherwise, ordinarily all work, whatever it is, carries about the same risk?—Yes.

3638. You are not prepared to compare that risk with the risk in any other business, are you?—No, I am not.

3639. I think you said all your men are permanent men?—Pretty well. They are very rarely stood off in that department.

3640. There would be some carriage-painters, and the great bulk would be labourers?—No, as a matter of fact the great bulk are painters. The minority are labourers.

3641. What work would the labourer be doing?—Rubbing-down, carrying planks, cleaning bodies—

3642. Assisting the carriage-painter generally?—Yes. He would wash down the roof beforehand and wash down the sides of the car.

3643. You gave a list of five names. Did those represent the only cases where men have taken time off in your department through sickness?—Through lead sickness, according to the certificates. They are the only ones who furnished certificates in the last three years.

3644. Have you a similar record with regard to the rest of the employees?—That is kept in the Department. All men off over two days have to send in a certificate, and that record is kept.

3645. Would it be much trouble for you to get that record out?—If you made application to the Superintendent he would do that.

3646. Mr. CONNINGTON: I think it might be useful, if it is not going to entail too much effort on the part of the Department. The witness is in control of the painters and their labourers. He has given five cases of men who have been off through admittedly lead-poisoning at some stage or other.

3647. DEPUTY-PRESIDENT: He has given us the names of five men who have been absent more than three days and who have sent in doctors' certificates indicating that they suffered from lead-colic or plumbism.

3648. Mr. CONNINGTON: Apart from that, there are a number of men who are off work through other kinds of sickness?—Yes.

3649. And you keep a record of those men?—A record is kept of all men who are off over the time. They must furnish a certificate unless they are off on special leave.

3650. DEPUTY-PRESIDENT: I take it the administrative record will include the cases of all men who have lost time?—Over and above the two days.

3651. I mean, of men who have lost time. Your time-sheet you have every fourteen days gives cases of men who have lost an hour or more?—It does not matter if they lose two days or two quarters of an hour.

3652. Any man who loses any time at all?—Yes, over and above a certain amount.

3653. Is not a quarter of an hour the downward limit of time?—It is, but I am only pointing out the facts of the case.

3654. Every time a man lost two quarter hours it would be shown on the sheet as lost time?—No, in my office only.

3655. He would not be shown in the administrative office as having lost time?—If he loses an hour he is reported.

3656. If he loses an hour he is reported by you to the general administrative office as having lost time?—The time-board is kept every morning and the sheet goes up to the Superintendent's office, and that is all recorded. If a man is late more than twice it is recorded in the Superintendent's office on the lost-time sheet. That comes to me each period, if there is sufficient lost time on it. I have to "take up" with the men, and I am then asked what action has been taken to overcome the lost time.

3657. The Superintendent will be able to give a record of the case of every man who has lost an hour of time from his service?—Yes.

3658. DEPUTY-PRESIDENT: The record is a very extensive one; every man who has lost an hour of time will appear upon that record no matter what the cause was—fulness, or anything.

3659. Mr. CONNINGTON: You do not classify them in it—cases where they are off through illness?—Yes, that is recorded, too.

3660. DEPUTY-PRESIDENT: Then the record contains the case of every man who has lost time from any cause?—Yes. If he is back inside two days he has not to furnish a certificate, but it is still recorded.

3661. He is in your list?—Yes, and they keep a copy of that list in the office.

3662. DEPUTY-PRESIDENT: So men who lose between an hour and three days will appear upon the record, and the cause of this loss of time will not appear if it is inside of three days?—Yes. Of course, there are cases where a man will not appear on the lost-time sheet—that is, if he makes application for time off in advance.

3663. Mr. CONNINGTON: We, after all, are only seeking the true state of affairs. The only value this would have would be, say, if we got 200 men in the painting trade and 200 men in another section, and you might draw an inference—it might be strong enough to draw an inference, and it might not. Still, I admit, as you suggested this morning, it is largely fishing for the truth.

3664. DEPUTY-PRESIDENT: I shall be glad to ask information from any one who is able to give us information of value. If these records are made up and it is possible to compare time lost in one department of the railway service with time lost in another department, I think we ought to ask for it in order to compare time lost in the painting department with lost time elsewhere?—You can very easily get that.

3665. Who is the officer in charge of the records?—They all come under Mr. Hamilton, the Superintendent, and if you made representations to him I am sure he would do it for you. It would not take long, I think; he could give you a comparison with the whole.

3666. Mr. CONNINGTON: You have a shop record of the men who lose a quarter of an hour?—Yes.

3667. And there is the other record up to three days?—They can give you the whole of it, mine also.

3668. DEPUTY-PRESIDENT: Every man who loses as much as an hour is reported by you to the Superintendent, who keeps the record?—His staff does.

3669. Mr. CONNINGTON: As long as the base would be the same in each case, I am satisfied?—The base is the same in each department.

3670. Mr. CONNINGTON: If it is the same with the plumbers, engineers, painters, and so on, all right.

3671. DEPUTY-PRESIDENT: The test is whether these records assign a cause for the absence. If they do not, they are not likely to be of value to us.

3672. Mr. CONNINGTON: If they assign a cause—sickness—and we take that throughout, it will not help us in the least for the purposes of the Board;

but if we get the number of men absent on account of sickness in each case, it will be of some help.

3673. DEPUTY-PRESIDENT: I think we ought to inquire into all the information which can be given by the Superintendent as to the painters' shop as compared with other shops.

3674. WITNESS: I think you can get that very accurately.

3675. Mr. MANNING: With regard to the paint you described as used on the roofs of the carriages, before that was used at all I take it that ordinary lead paint was applied to the wooden roofs?—Yes.

3676. That would be the application of ordinary paint to wood?—Yes.

3677. After the change came about, I think you put a canvas over the top of the roof?—In all cases, when the roof is stripped. There are cases where the roof is not bad and does not want the whole of the canvas taken off. Then they put on a coat of material and put the scrim on top.

3678. You did not employ canvas at all under the old system, when using lead paint?—Yes, we did.

3679. And was the lead paint applied then to canvas?—Not the bottom side, but to the roof boards, and the canvas was stretched on and two coats applied on top of the canvas.

3680. The system you adopt now is to put canvas over the woodwork first?—No, we paint the roof first and then paint the bottom side of the canvas before stretching it across the roof. Then it is stretched across the roof on top of thick material, and then it is put down the same as it was before.

3681. What about the thickness of the stuff you put on top of the canvas;—is it a sort of ruberoid?—No.

3682. How thick is it?—It is only thin, used as a dressing rubbed into the canvas. There is no thick coat laid on the canvas at all; it is not laid on like an ordinary coat of paint.

3683. How is it laid on?—Rubbed with a special brush into the canvas.

3684. It is a special preparation?—That is right.

3685. What is the thickness of the whole material put on top of the woodwork?—When the stuff is applied to the roof it is about a quarter of an inch thick. Then the canvas is put on and this material is rubbed into it.

3686. When you are speaking of the new substance, is that the thing a quarter of an inch thick?—That is how the canvas has this rubbed into it.

3687. It is really a kind of composition?—Yes.

3688. As regards the colouring matter in that, the pigment is an ochre, is it not?—Yes.

3689. The circumstance that makes it possible to use the ochre is the fact you have canvas there to mix it with, is it not?—No, there is a vehicle with it. It is mixed with the vehicle—it is in compound form.

3690. But is not the canvas an integral part of the composition?—Not necessarily so.

3691. Why is canvas put there?—To make it water-tight.

3692. DEPUTY-PRESIDENT: I take it the canvas is kneaded into the mixture by subsequent application after it is stretched?—It is not laid on in a heavy coat, like ordinary lead-paint; it is just rubbed into it.

3693. Mr. COOPER: It is put on the same way as oil?—Pretty well.

3694. Mr. MANNING: Supposing you were applying the ochre pigment to wood you would not regard it as a substitute for lead in all cases?—No, I would not. It would be only good for the roof purpose.

3695. I suppose the colour has something to do with it?—The colour could not be used everywhere, not for all purposes.

3696. You would not get that colour with lead, would you?—No.

3697. Would it be possible to substitute wet rubbing down or papering, for the dry process?—We rub down wet.

3698. Always?—Yes, for the outside of the body.

3699. And for the inside, too?—No, it is not filled up inside. The parts are washed first inside.

3700. You do not use sand-paper at all?—Yes, it is always slightly papered.

3701. Is that done when it is dry?—No.

3702. Would it be possible to do it wet?—No. If you wanted to flat down you could do it with water. If it is clear varnish, you flat it down.

3703. I want to know if you could use a substitute method for that dry sand-papering which causes dust?—There is very little dust arises now.

3704. That is, after the first coat is put on?—Yes. Sand-paper is always rubbed over, even if you go into varnish. It is only to give a surface to the timber.

3705. So when you sand-paper the first coat there is no difference, because there is no perished paint?—No. They flat that down if necessary.

3706. There is a difference between the two things: one is getting rid of old and perished paint, and the other is dealing with new paint?—That is the position. It is only lightly rubbed over.

3707. You mentioned the case of the man Wilkins. I think you said he was with you two and a half years before getting this illness?—In the service, with me.

3708. Prior to that he had been with the Tramway Department?—Yes, painting. I could not say what character of painting he did.

3709. Do you remember the state of his health when he came to you?—Not too good, I believe.

3710. Were you aware of any affliction of the teeth?—No.

3711. You do not know any of the details?—I do not.

3712. MR. WILLINGTON: Do you provide any special or ordinary means for cleanliness amongst the workers?—Yes.

3713. Is there any regulation making it imperative upon them to use those?—No. This provision is made for them, but the men do not often avail themselves of it—goggles and gloves for different work—but I can assure you they are not properly availed of.

3714. Is there any sound reason for refusing to use those facilities?—No, I do not see any. There was complaint made in the first instance. Then when we got the things they did not care about using them.

3715. Do you think there is a real advantage in the use of them?—Yes.

3716. DEPUTY-PRESIDENT: Do the leading hands use these precautions?—Very few.

3717. Does the foreman instil into the minds of the men the necessity for making use of the precautions available?—We let them know the provision is there for them to take advantage of.

3718. Do the men have some space before the whistle goes to knock off?—Three minutes.

3719. In which they can wash their hands?—Yes. There is a space of two minutes at dinner time and three minutes at night.

3720. Is the lavatory installation sufficient for them all to wash in that period of time?—There is no lavatory—they wash in buckets.

3721. MR. CONNINGTON: There would not be 240 buckets?—I cannot say how many there are, but I know there are more than that.

3722. DEPUTY-PRESIDENT: Available for washing purposes?—No, for general use. As a matter of fact, they all have a bucket—some would have two. The buckets are for water purposes.

3723. MR. COOPER: Is there anything besides water provided to clean the hands with, such as turps or kerosene?—They would not use that. You can wash paint off with soap. They could get all things if they wanted them.

It is just as well to keep turps from the hands if you can—it is better to use oil, and they can have that if necessary.

3724. MR. WILLINGTON: Do you think the manner in which they neglect that duty is due to carelessness or to want of knowledge?—I should say in the majority of cases it is carelessness. If a man serves his time at the trade he should know the risks of it.

3725. DEPUTY-PRESIDENT: Is it your experience tradesmen are prepared to go home with dirty hands?—No.

3726. Where does he wash?—In a bucket of his own.

3727. Then I take it they do wash?—Yes, certainly.

3728. MR. MANNING: At the end of the day?—Before he goes to his meals, also: There is a space of two minutes given to him.

3729. DEPUTY-PRESIDENT: I thought you said, in answer to Mr. Willington, they are negligent in respect to their washing?—No; Mr. Willington spoke about taking precautions, providing precautions.

3730. They are negligent in the use of goggles and gloves?—Yes.

3731. MR. MANNING: Do you remember whether or not there was a considerable shortage of white-lead towards the end of the war?—Yes, from the latter end of 1917 to 1918. There was a very considerable shortage.

3732. During that period other paints had to be used?—Yes.

3733. How long did that shortage continue—up to the present time?—No.

3734. Are supplies coming forward now all right?—Yes.

3735. When did other things come forward in normal quantities?—I could not give you the date. There was another shortage later on which the factory broke down, but I cannot say when that was. I think it would be the latter end of 1919, October or November.

3736. How long did that shortage continue?—It may have been two months, but I would not be sure.

(Witness retired.)

(At 4.10 p.m. the Board adjourned until 10 a.m. the following day.)

SIXTH SITTING.

TUESDAY, 5 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME. DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. WILLINGTON

MR. COOPER.

FREDERICK PARDEY, sworn, examined as under:—

3737. DEPUTY-PRESIDENT: What is your position?—Foreman of the car and paint shop, Randwick workshop.

3738. Those are the tramway workshops?—Yes.

3739. Are painters employed at those workshops?—Yes. We have with painters and apprentices and painters' assistants, about fifty.

3740. How many would be tradesmen and how many labourers?—Thirty-three painters and thirteen painters' assistants.

3741. They would be painters' labourers?—Yes, but they do a lot of painting. Under the award there is a certain amount of painting done by the painters' assistants. Then we have about three apprentices.

3742. DEPUTY-PRESIDENT: Are the assistants members of the Painters' Union, Mr. Connington?

3743. MR. CONNINGTON : No.

3744. DEPUTY-PRESIDENT : Are they members of the Branch of the Union that represents their interests in the Railway and Tramway Service?

3745. MR. CONNINGTON : I would not say definitely, but I feel pretty safe in saying that they are members of the Amalgamated Society or one of the Service Unions.

3746. DEPUTY-PRESIDENT : Perhaps we had better get some information about it, because it will throw a lot of light on the statistics of the case.

3747. MR. CONNINGTON : I will have that information at the next sitting.

3748. DEPUTY-PRESIDENT : I understand there is a railway service combined trades union—one of the new unions formed since 1917.

3749. MR. CONNINGTON : I will get all the particulars of the railway bodies, and will have that information available for the next meeting.

3750. DEPUTY-PRESIDENT : Very well. What I want you to bear in mind, at this particular stage of the inquiry, is that the evidence we are getting with reference to employees of the big institutions, like the Railway Department, and the Water and Sewerage Board, and the Naval Establishment, and so on, represent a substantial proportion of the whole of the painting tradesmen in the State. You have given us evidence with regard to the number of men in the Union. I forget exactly what the figures are.

3751. MR. CONNINGTON : 1,500.

3752. DEPUTY - PRESIDENT : There are 400 employed in the Railway Department, not all house-painters, it is true. But if we combine the 1,500 men who are represented by yourself with the men who are in the Coach Painters' Union, then we shall be able to get the total number of organised painters in the State, probably, or we shall be able to get something like the total number.

3753. MR. CONNINGTON : Yes ; we may get the secretary of that union to come along before you. I think that will be the most satisfactory way for you to get the information.

3754. DEPUTY - PRESIDENT : If, by looking into the conditions of the employees employed by the large employers, we can find what may be regarded as the health conditions of 25 per cent. to 30 per cent. of the whole of the employees in the painting trades of the State, we will have a ground-work upon which we can begin to form our own conclusions.

3755. MR. CONNINGTON : Yes. I will inform the Secretary of the Coach Painters' Union that the Board wants certain information. I prefer that he should give it to you himself, and I will ask him to come along here for that purpose.

3756. DEPUTY-PRESIDENT : Are these men employed at the Randwick workshops all coach painters and car painters?—Yes.

3757. Or are some of them house painters?—They are all doing carriage work and tramway cars.

3758. You have no section which is doing permanent-way work?—Of course, we do work for all the Electrical Engineer's Department at the various power houses, and so on, making different things, carpenters, and so on. Of course, that has all to be sent out.

3759. Who does the painting of the tramway sheds?—That is the permanent way—that would be under the Tramway Engineer.

3760. And he keeps his staff of painters somewhere else?—Yes.

3761. You are concerned with them?—No.

3762. You do not know how many painters he employs or controls?—No.

3763. With regard to the men who are under your control, how long have you been in your present position?—I have been thirty-nine years in the Service, and I have been about nine years as a foreman, and before that I

was for about seven years supervising the construction of work at Meadowbank and Clyde.

3764. By outside tenderers and contractors?—Yes.

3765. Are you a tradesman yourself?—I am a carriage builder.

3766. You have not actually worked in paints?—No, I have only supervised the painting. When I was inspecting I supervised all the work—painting, carpentering, etc.

3767. You have for some years past been in control of the painting work at the Randwick shops?—This last twelve years.

3768. In that time, what have you observed with regard to the health of the employees who are doing the painting work and those who are assistants to the painters?—They keep very good health. You see, the shops out there are very large shops and are well ventilated, and every facility is given the men with regard to washing their hands and so on.

3769. Do you give them time off in which to wash?—Yes, we give them two minutes at lunch time and three minutes before five.

3770. And do you provide them with facilities wherewith to perform their ablutions?—Yes. In fact, if a man is doing dirty work we tell the subforeman to allow him five minutes extra time for that.

3771. Are there basins in which men may wash?—Yes, there are basins all round the shop.

3772. Do you provide soap too?—Yes.

3773. Is hot water provided?—Yes; if they want hot water there is a hot water boiler going all day.

3774. You are foreman not only of the painters, but foreman of other classes of labour?—Yes. The carriage builders, carpenters, and joiners, and the wood machine shop.

3775. Can you compare the conditions of health of the painters with the conditions of health of the carriage workers and other classes of workers?—I think they are about the same.

3776. Have you kept any record to indicate the degree of absenteeism on the part of the different classes of employees?—I looked over the timekeeper's records, and I found that all through the shops they are somewhere about the same. The painters do not lose any more time than the others—that is the blacksmiths, electrical mechanics, the car builders, the boilermakers, and all classes of trades.

3777. Is there an actual record of absenteeism?—Yes, there is a record kept.

3778. Who keeps that record?—The timekeeper.

3779. Is there an administrative staff officer in connection with that?—Yes.

3780. Would that gentleman bring his records here?—Yes. You can get any records at all. If a man loses half an hour it is put on his card and it goes over to the timekeeper, and those records are kept.

3781. What is the name of the gentleman who should be invited to attend with that record, the man who actually compiles the record?—I think the best way would be to ask the Works Manager or the Chief Electrical Engineer to supply it and he will send a man.

3782. What kind of paint is used in the paint shop at Randwick?—We are using mostly enamels now, and are enamelling the cars. The enamel is imported, Vitrolite, Ripolin, Velure, and Lewis Berger's enamel.

3783. What proportion of lead paint and enamel is used in any particular period of time there?—For the last twelve months we have used about 470 gallons of enamel, and for the last six months we have used 120 cwt of lead; and for the twelve months preceding that we used 154 cwt. of lead. That is 274 cwt. of lead in the last eighteen months.

3784. And 470 gallons of enamel in twelve months?—Yes.

3785. What would be the weight of a gallon of enamel? I could not say.

3786. Could you give it to us approximately?—I would not say unless I was sure. I know half a pint of enamel will cover about 5 square yards. I suppose half a pint would weigh about a pound.

3787. So there would be about 16 lb. to the gallon?—I think so.

3788. Do you know anything about the composition of the enamel; what is its base?—I think it is mostly oils. I could not say. It is all imported.

3789. You can only guess at the composition?—Yes; I would not say at all.

3790. Do you mix any paints at Randwick?—Yes, we mix our lead paints.

3791. All of the lead paints?—Yes.

3792. You do not use any of the proprietary paints?—No, we make all our own paints.

3793. And you mix them all on a basis of carbonate of lead?—Yes.

3794. Is all of the work done under cover?—Yes. We have a large shop there about 118 feet by about 90 feet. All one side is practically open with doors, and all the other sides have windows open, so there is plenty of ventilation. They are really up-to-date shops.

3795. Do you actually manufacture the whole tramway car there?—No. We are manufacturing the cars at present, but most of the cars there of which I supervised the construction were built by Meadowbank.

3796. When a car is built by the outside tenderer it is completed and painted by him?—Yes, it is finished all but the electrical work.

3797. Do you put the roofs on the cars at Randwick workshops?—Yes.

3798. What is the composition which goes upon the roof?—We just canvas the roof. Do you mean the paint?

3799. Yes, what is put on by the painters?—It is lead paint.

3800. There is something underneath the canvas—a thick layer of material?—Yes. We put a thick layer of lead. As soon as you plane off your boards you trim it, put canvas on, and then you give that a couple of good coats of thick white-lead; then you get your canvas, put another coat of lead on, and canvas it, and then on the top of that you give it a couple of coats of thick white-lead.

3801. What weight of white lead would there be on the roof of a car?—I could not say.

3802. Approximately what would be the thickness of the white-lead cover? There are three layers of white-lead, two below and one above the canvas?—I suppose that would take about an eighth of an inch.

3803. All three coats?—Yes. It is all compressed. You roll it and it is all compressed down to a mere item.

3804. Still there is a considerable handling of white-lead in the laying on of the roof?—Yes. Of course we have not done much of it out at Randwick. As the cars come in to Randwick to be repaired, we give them a coat. None of our varnishes and colours are wasted; we put it all in a large tub, and it is mixed up, and so used for our roofs.

3805. That is, you do not repair the roof by replacing the lead on it?—No. Every car that comes in is swept down and given a coat of this colour and then it goes out again.

3806. How frequently do you cover the roofs with a coat of paint?—We do about fifty cars a month.

3807. How often do you pass a car through that process in a year?—That car may run out from eighteen months to two years and over.

3808. Before it gets a new coat?—Yes.

3809. Have you seen any indications of lead poisoning amongst the painters and painters' assistants employed at the Randwick workshop?—No, none at all.

3810. Has it been suggested to you by any of the employees that they have suffered from contact with lead?—No.

3811. You are speaking with regard to your twelve years of experience when you make that answer?—Yes.

Examined by Mr. CONNINGTON :—

3812. You told us that you allow them two minutes before dinner and three minutes in the afternoon to wash, and you provide plenty of hot water?—Yes.

3813. Do you consider all those privileges are a protection against the men being leaded?—Certainly.

3814. Is it necessary that there should be some protection in that way?—Yes. Of course we are doing so much enamelling there. I suppose they are only about 15 per cent. of their time using lead at Randwick.

3815. And all the rest of their time they are using enamel?—Yes, and non-poisonous paints—zinc white.

3816. Over what period of time has this enamel been in use in the proportions you have just indicated?—About three years.

3817. The last three years?—Yes.

3818. Only about 15 per cent. of the covering used is lead; the rest is enamel?—That is right.

3819. DEPUTY-PRESIDENT: And prior to that?—Prior to that there was more lead used.

3820. What proportion, roughly?—I could not say what proportion, but we used to use a lot more lead.

3821. Mr. CONNINGTON: If your painters were using lead paints only, would the three minutes and the two minutes time now allowed by you before dinner and in the afternoon be sufficient to allow them to clean up?—Yes, certainly. You see, we have a mixing shop, and the man goes there and gets a pot of paint and uses it. There is a man who collects all those pots, and they are all taken back and cleaned. Every time a man comes into the place he gets a new pot, so that really a painter out there has not got his hands in paint all day. He gets hold of his tin, which has a nice handle to it, and he gets hold of his brush, and you will see some of them there nearly as clean as I am. A man looks after himself.

3822. After your painters have finished for the day the tin is taken away and cleaned by someone else?—Yes.

3823. And the next day he gets a fresh tin?—Yes.

3824. And, as you say, only 15 per cent. of it is lead paint?—Yes.

3825. In your experience have you noticed any of the smaller sicknesses amongst the painters, such as colics or headaches?—No, nothing at all.

3826. Illnesses or anything of that kind?—No.

3827. Do you keep any record of the time lost by men through sickness?—There is a record kept, but it may not state what is the sickness, unless they go for a medical examination. After a day, if a man loses a day, he puts in an explanation; that comes to my office and I would see it, and I forward it on. He explains then the reason of his absence.

3828. That is after a day?—Yes. After three days he produces a medical certificate. After fourteen days he goes down to the medical officer and reports to the medical officer.

3829. Are there any records kept of the men's absence and the reasons assigned by them for being away?—Yes, there are records kept of the men's absence; that is shown on their cards.

3830. And the reason assigned by them for being absent?—Yes, the reason assigned.

3831. You do not keep any record?—No. It just comes to me and I send it on.

3832. DEPUTY-PRESIDENT: That is, the letter you receive explaining the man's absence of one day's duration is remitted by you to the office staff?—Yes.

3833. And the official record is based upon that?—Yes. And after three days a man has to give a doctor's certificate, and that record is kept as well; so the records must be up to date.

3834. Mr. CONNINGTON: With regard to the thirty-three painters, they are professional painters?—Yes.

3835. Are the men in constant employment?—Yes.

3836. They are not casual?—No.

3837. And I suppose some of them have been there for a considerable time?—Some of them have. The strike affected a lot. We have had new men since.

3838. Since the strike, may we take it that the majority of those thirty-three men have been at work there a year?—I suppose about half of them.

3839. However, they are all regular hands?—Yes.

3840. Are the assistants in the same position?—Yes.

3841. Apart from the experience you have had as foreman at Randwick, have you had any experience with painters elsewhere?—I was about seven years daily at Meadowbank and Clyde. I was mostly at Meadowbank, where I had to supervise all the painting and all the work.

3842. Was there much painting done at Meadowbank?—Yes, there was a lot.

3843. It would be mostly machinery and so on there, that would be painted?—No, Meadowbank builds about 600 cars.

3844. During the time you were there?—Yes.

3845. There would be a lot of painters employed there?—Yes.

Examined by Mr. MANNING:—

3846. With regard to the enamel, it is used over a lead paint underneath, the enamel being a sort of paint varnish?—Where the very light parts are—the top panels, which are a light colour, we have been giving them one coat of paint; we have been putting the enamel over the old colour. If it is in good order we just wash it down, and give it one coat.

3847. If it is not in good order?—We give it one coat of flat coat paint and enamel over that.

3848. The enamel really is a kind of paint varnish?—Yes; instead of varnishing we are enamelling now.

3849. Do you use dry white-lead?—Yes.

3850. Do you do mixing?—If we want quick jobs which are white we just mix it up with dry white-lead and turps and that, and do it.

3851. Does each painter do that?—The painters.

3852. Each painter?—Not each painter. You will have a lot of men on the cars. That will be a stated job, and you may send one man to do it.

3853. DEPUTY-PRESIDENT: What is your consumption of dry whitelead per annum?—We use a lot of white-lead for stopping. In the last twelve months I suppose we have used 3 to 4 cwt.

3854. Mr. MANNING: You know what are known as the Japan quick-drying colours?—Yes.

3855. Was the enamel substituted for the use of those?—No.

3856. You have not used those at all yet?—We used to use the quick-drying colors and then varnish on top—tans and buffs. Instead of that we now just put a flat coat of coloring and then enamel. What we are doing is

this, we are testing to do away with the sandpaper filling; we are trying the surface with a primer, which is an enamel the people are putting on the market.

3857. DEPUTY-PRESIDENT: What is the idea of that?—That is their own composition. It is a body for their enamel. It is a sort of a glazed colour and does not give so much dust as the other. I am testing it now.

3858. MR. MANNING: That so far is merely in its experimental stage?—Yes.

3859. You cannot say anything about it at present?—No.

3860. You say that up till two years ago you were using a very much larger percentage of lead paint than you are using at the present time?—Yes.

3861. And the reduction to 30 per cent. only occurred two years ago; during the last two years you have been using 30 per cent.?—Fifteen per cent., I said.

3862. DEPUTY-PRESIDENT: I think the witness put it in this way, that 15 per cent. of the time was occupied; or was it 15 per cent. of the material?

3863. WITNESS: Fifteen per cent. of the time.

3864. MR. MANNING: That is during the last three years?—Yes.

3865. And prior to that would it be correct to say that the bulk of the paint used was lead paint?—You see, there is so much varnishing to do; all the insides of the cars are varnished, and the outsides are finished with varnish.

3866. I just want to fully understand the position about the way you put it when you say that 15 per cent. of the time is occupied in the use of lead paint. I suppose all the surfaces you build with in the workshop are painted at some stage or other with lead paint?—Yes, the first coating.

3867. And you continue to adopt that course now; wherever it is necessary to remove and repaint you always make use of lead paint?—Yes.

3868. And in particular you have drawn attention to the painting of the roof of the car, which has three coats of lead paint.

3869. I would like to know if you have ever made any experiments with any substitutes for lead paints for the roof?—No, we do not, because we have so much waste. There are all the different paints and enamels and varnishes, which are all put into one large tub, and we seem to have enough, with putting a little colouring with it, to use it on the roofs. That really saves us using the lead.

3870. Have you ever had any experience of zinc oxide paints?—Only the zinc white. We do our inside ceilings with zinc white.

3871. Would you ever think of using that as a substitute for white lead for the outside?—Not at all. It has no covering properties.

3872. Any weather resistant properties?—No. You would have to give two or three coats, whereas you would only have to give one coat with the other.

3873. DEPUTY-PRESIDENT: There are two aspects of the thing which I think have been confused in that question and answer. By covering property you mean obliterating capacity?—Yes.

3874. And by weather-resisting property you mean something else?—Exactly. Weather-resisting property is the lasting property.

3875. Which do you prefer for the lasting effect?—The white lead.

3876. MR. MANNING: For actual weather-resisting properties, say a month after it is put on, which do you prefer?—A month after?

3877. Yes. Compare white lead paints with zinc oxide paints, even shortly after they are put on?—For outside work I would not consider it at all; I would use the white lead.

3878. DEPUTY-PRESIDENT: That is, you think the white lead is so superior in point of lasting quality that you would not hesitate to use it on all occasions?—That is right.

3879. Mr. MANNING: Apparently you can only speak as to the lasting qualities of the two paints. Have you ever microscopically examined them to see the kind of surface presented by a zinc oxide paint after it has been on for some months?—No.

3880. Supposing you were painting the outside of a house, and you had in view the keeping out of the rain, which of the two would you adopt?—I would use the white lead.

3881. So you think the white lead is more impervious to wet than the zinc oxide?—I think so.

3882. You have been there twelve years?—Yes, twelve years in the present position. I have been thirty-nine years in the service.

3883. How many painters were employed when you first joined twelve years ago?—I suppose about seventy all told, with the assistants. They had a much larger staff then.

3884. Now the number has been reduced?—Yes.

3885. Are there many men on there now who were on when you first went there?—Yes, there are a fairly good number.

3886. Mr. CONNINGTON: You cover the roof of the car with waste material do you not?—Yes.

3887. And that, I take it, would be principally enamel paint?—No; it would be a little floor covering or varnish—all lead paints. You see, we do work for the electrical department, like the power house; we do work for Broken Hill, Newcastle, and everywhere. We are using different lead paints, and what is left we put into this tub.

3888. At the end of the day's work somebody tips the tins into the cask or the vat, and you use that for covering the roofs?—Yes. There would have to be a proportion of lead in there, to give it a body.

3889. However, whatever there is, it all goes into the vat?—Yes.

3890. And then it is taken out and the roofs are covered with it?—Yes.

3891. Before you start a fresh coat of paint on the roof, do you rub it down?—No; we just sweep or dust it down, and paint it.

3892. You put a broom on it?—Yes.

3893. And you just take the dirt and so on off, and then come along with a brush and paint it?—Yes.

3894. Have you ever experimented with oxide zinc paint for the purpose of testing its durability?—No.

3895. Have you made any outdoor tests?—No.

3896. Have you seen any outside painting done with oxide of zinc paint?—No.

3897. Are you in a position to say whether it is suitable for inside work?—Yes, it is suitable for inside work, especially for our roofs. If you put the lead only on, with the smoke and dust and that, it is inclined to turn yellow, whereas the zinc keeps its colour better.

3898. It has been said that it has more resistance against the effects of sea air than lead. I suppose you are not in a position to say anything on that point?—No.

3899. With regard to the covering properties, are you really in a position to say whether a gallon of zinc oxide paint will not cover as much as a gallon of lead paint?—Yes, I think so, because as a rule when doing the roof we put on a coat of flat lead paint before we put on a coat of zinc white on.

3900. I mean, can you cover more space with a gallon of lead paint than you could with a gallon of zinc?—I have not had experience, but I take it

you would cover about twice as much. You would have to put about two coats of zinc white on for one of the other.

3901. Do you know Keystona paint?—No, I have only seen it advertised.

3901½. It has been suggested by professional painters that two coats of that will go further than three coats of white lead. However, you do not know?—No.

3902. Have you ever had any experience of the Keystona paint?—No.

3903. How is it you hold the view that lead paint will last longer than zinc oxide paint?—Because it is a general practice to use the other. Everybody goes for the best, and where you see the lead used you see very little zinc used in comparison with the lead.

3904. That is how you formed your opinion. You have never tested it?—No.

3905. Do you know that the roofs of the railway carriages are covered with a composition containing no lead?—I have heard of it.

3906. Can you say anything as to the lasting qualities of the preparation?—No; in fact, I think that is only a new process they are starting.

3907. You have not seen any of the carriages since they have been done with that preparation?—No.

(Witness retired).

FRANK WILLIAM WILSON, recalled, further examined as under:—

3908. DEPUTY-PRESIDENT: You were to produce certain information?—Yes; I tender a list of the members of the Association, and, if it will be of any service to the Board, I am quite prepared to indicate on that list what companies I think would not be of any use to the Board for obtaining information.

3909. This is a list of the members of the Accident Underwriters' Association of New South Wales, compiled as on the 4th July, 1921?—Yes.

3910. Will it take you long to eliminate those who are not likely to prove of value to the Board in its present inquiry.—No, I will just put a tick against them. (*Marking list accordingly*), You will see that it very considerably reduces the number.

3911. You have reduced the dimensions of the list by about 60 per cent. apparently?—About that.

3912. Will you go on to say which of the companies will volunteer to represent the interests of the companies who remain on the list after excluding those that are ticked?—I could not do that. I have a committee meeting to-morrow, and if my committee are willing that I should indicate any particular companies I can intimate that to the secretary.

3913. You will receive a letter from the Secretary of the Board which you can put before your committee?—Very well.

List of members of the Accident Underwriters' Association of New South Wales, as on the 4th July, 1921 (marked Exhibit No. 4.)

(Witness retired).

COLIN FRASER, sworn, examined by Mr. MANNING:—

3914. You hold a number of positions in connection with the mining industry of New South Wales?—Yes.

3915. First of all, you are a mining director and a mining engineer?—Yes.

3916. And you hold the degree of Master of Science in the New Zealand University?—Yes.

3917. You are Vice-President of the Australasian Institute of Mining and Metallurgy?—Yes, for the year.

3918. And you are connected with the financial and business side of the Broken Hill mining and smelting industry?—Yes.

3919. As far as this particular inquiry is concerned, you represent a number of mining interests?—Yes, I am a Director of the Broken Hill South Company, and I am the representative on the Committee of Representatives of the Barrier Mines.

3920. That is a committee formed to speak for the mining interests generally of Broken Hill?—Yes. It controls the policy of the Broken Hill industry really. I have been asked to represent them at this inquiry.

3921. You are also Managing Director of the Broken Hill Associated Smelters' Proprietary, Ltd.?—Yes, the Australian Managing Director. We have another Managing Director in London.

3922. And they own the Port Pirie Lead and Zinc Smelters?—Yes.

3923. You are also a director of the Electrolytic Zinc Company of Australasia?—Yes.

3924. They have their works near Hobart, in Tasmania?—Yes, four miles out of Hobart.

3925. You are also a Director of the British Australian Lead Manufacturers Proprietary Limited?—Yes.

3926. They have white lead works near Cabarita, Sydney?—Yes.

3927. DEPUTY-PRESIDENT: Corroding works?—Yes.

3928. MR. MANNING: And in that last mentioned Company three of the Broken Hill Companies have substantial interests?—Yes.

3929. You are aware of the question that has been referred to this Board for consideration and report, and I understand you have applied your mind to that question in so far as its answers may affect the industries with which you are connected?—I have.

3930. I understand in that connection you have certain views which you desire to put before this Board in the interests of the industries which you represent?—Yes.

3931. THE DEPUTY-PRESIDENT: Has Mr. Fraser statistics with regard to the industry?

3932. MR. MANNING: Mr. Fraser has got some figures which he will give, and others which perhaps may follow from his evidence. He has certain opinions which he wishes to express first of all, which he has derived from his experience of the industry. I do not know to what extent the Board is informed of those facts up to the present, but I have no doubt that Mr. Fraser's evidence will be very valuable as indicating the real scope of any interference, such as that contemplated with the white lead industry.

3933. DEPUTY-PRESIDENT: We are prepared to receive evidence on that point.

3934. MR. MANNING: I understand that your starting point is a consideration of the available supplies of pig lead throughout the world, is that so?—Yes. When considering how Australian lead mining and smelting will be affected, considering that we depend mainly upon our export business, it is a matter of consideration of the world supplies of pig lead.

3935. You have, therefore, applied your mind to the world supplies of pig lead in order to ascertain how the prohibition or restriction of the use of white leads in paints in Australia would affect the industry here?—Yes.

3936. You first of all drew attention to the fact that the Australian industry depends upon the export business?—Yes; for about 90 per cent. of its normal output of lead.

3937. That is the pig lead?—Yes.

3938. Have you figures showing what are the world supplies of pig lead?—I should say it would be better to take the years 1912 and 1913, prior to the war.

3939. DEPUTY-PRESIDENT: Give us what you have got, and if we think that figures with regard to different years should be taken we will ask you to supply us with them.

3940. Mr. MANNING: That is what you might call a normal supply?—Yes.

3941. Give us that information?—The world's output in 1913 was about 1,170,000 tons. As far as I can ascertain, that was the world's supply of manufactured pig lead—refined lead.

3942. DEPUTY-PRESIDENT: Pig lead is metallic lead that has passed through the smelting process and been refined?—Yes.

3943. To what extent is it pure?—It is rather curious, but there is no real specification of lead. There is a recognised quality which meets the case, which is called the London Blue Contract, of the London Metal Exchange. It is about 99.6 or 99.7 fine.

3944. That is in ingots?—Yes; pigs they are usually called.

3945. Mr. MANNING: Those are the normal supplies of pig lead?—Yes.

3946. That is the world's production?—Yes.

3947. What percentage of the world's production of pig lead is used in the manufacture of white lead?—As far as I can ascertain it is something over 20 per cent. that goes into white lead.

3948. Do you mean round about 20 per cent.?—I think it is something exceeding 20 per cent. That does not refer to red lead. I do not know whether that is a matter of concern to this Board.

3949. DEPUTY-PRESIDENT: That is a difficulty in which the question leaves us. Nothing is said about lead in its forms other than the carbonate, but if the carbonate is prescribed I cannot imagine that the world would be content to use the oxides.

3950. The sulphate is supposed to be the least harmful, is it not?—Yes, it is.

3951. Mr. MANNING: You say something over 20 per cent. Do you mean much over 20 per cent. or thereabouts?—I think it will run between 20 and 23 per cent. It is hard to get a definite figure.

3952. That is, of the world's production?—That is, of the world's average production of pig.

3953. How does the Broken Hill lead compare with lead from other parts of the world as regards its purity?—Our Broken Hill lead is fortunately one which can be refined to a high stage of purity, and it is in particular demand for corroding purposes. I have no figures on it—in fact it is impossible to get figures—but I think that from 35 per cent. to 40 per cent. of our lead would go into corroding.

3954. DEPUTY-PRESIDENT: What percentage of that 20 per cent. of lead that is corroded would be Australian lead?—That comes back to Australia's pig lead output, which I have not yet given you.

3955. Is Australian lead sold for corroding purposes at a premium?—Yes.

3956. I gather that from your evidence. Then I suggest that if it is so much desired that producers are prepared to pay a premium price, it will be used in a high proportion amongst leads that are corroded?—The premium in the Old Country has been a small one. We have been endeavouring, since the present company took over, to put that lead in, even at a loss in refining to ourselves, in order to establish a market. During the war, when prices were high, we could afford to do that. As to what premium it will bring for corroding I cannot say.

3957. Did it bring a premium in 1915 for corroding?—That is the Broken Hill Proprietary's concern, and I cannot speak of them. It is significant that at least one of the British corrodors, Alexander Ferguson & Company, Glasgow, have closed down their refinery since they have had experience of the Associated Smelter's lead. They can depend upon it to such an extent. Previously they themselves refined all the leads.

3958. Where is the Australian Smelters' lead corroded?—All through England: all the corrodors.

3959. Then I misunderstood your statement. This firm did not close down their own corroding works because they could get lead already corroded?—They have closed down the refinery which they had attached to their corroding works in order to ensure the quality.

3960. MR. MANNING: You gave those figures as 35 per cent. or 40 per cent.?—Yes.

3961. Since then have new works been started in Sydney?—I do not think I have yet answered the question of the President, which comes back really to Australia's proportion of the world's corroded lead. Australia at that date was shipping both concentrates and metal. It is rather hard to get the exact figure. There is lead, of course, in lead concentrate primarily, and there is some lead in the zinc concentrate which goes abroad, about 7 per cent. there was the unrefined stuff from Cockle Creek, and refined lead from the Proprietary Works at Port Pirie. Altogether, I would say from 200,000 to 215,000 of that world's figure that I gave would be the Australian contribution to that pig lead supply.

3962. That would be about 10 per cent.?—About 20 per cent.

3963. I understood you to say that 20 per cent. of the 1,100,000 tons was used for the manufacture of white lead?—Yes, of the world's supply.

3964. Then you were asked what proportion of that 20 per cent. we contribute from Australia and you say 200,000 tons?—Of pig lead; that is Australia's contribution of pig lead to the world's total supply of pig lead.

3965. DEPUTY-PRESIDENT: I understand you to say it is almost impossible to suggest how much of the lead corroded by the world is contributed from Australian metal?—It is hard to keep tally of these things. It is sold on the Metal Exchange, London, and goes all over the world.

3966. It is mixed, I suppose, with other leads?—Yes. I hope I have made myself clear, but I think that from 35 per cent. to 40 per cent. of Australia's total pig lead output goes into corroding, and of the world's supply of pig lead Australia in normal times, such as 1913, contributed 200,000 to 250,000 tons of lead out of 1,100,000 tons.

3967. MR. MANNING: When you gave that figure of from 35 per cent. to 40 per cent., was that based on the facilities that were in existence here before the second big works had been started in Sydney?—This only supplies the local market, the local corroding works. I do not think they have exported.

3968. They would have an effect on the proportion?—I have made allowance for that in saying 35 or 40 per cent. As a matter of fact, I think Berger's representatives will say that their works have a capacity of from 7,000 to 9,000 tons of corroded lead, and the other works about 2,500 or 3,000 tons of corroded lead per annum. The second works has as yet no output of corroded, but it is just about to produce.

3969. DEPUTY-PRESIDENT: Are those the only corroding works in Australia?—Yes.

3970. Then the Australian output of corroded lead is in the neighbourhood of 10,000 tons?—Yes. That would account for 5 per cent. alone of the total lead output in normal times, if we get back to the figure.

3971. Is there an export trade in corroded lead from Australia?—I could not say.

3972. MR. MANNING: Of the 1,100,000 tons of pig lead, how much is converted into white lead?—I think I have indicated about twenty to twenty-three or twenty-four per cent. It is difficult to get the figure. The British corrodors issued figures, which I have no doubt have been fairly carefully prepared, but they have left out the Australian production, and they have left out the Japanese production. We have Japanese lead in this country. So that they are under the mark, I think.

3973. DEPUTY-PRESIDENT: Do you know anything about marketing conditions here; can you say whether we have any foreign white lead in our market now?—I understand there is some still coming in.

3974. From Japan?—And from England. There are one or two of the corrodors in England who are not interested in the local works, and I think they are exporting into Australia still.

3975. MR. MANNING: What percentage of that white lead is used in paint?—I understand that figure is about eighty-five per cent. of white lead.

3976. DEPUTY-PRESIDENT: Eighty-five per cent. of all corroded lead imported or manufactured in Australia?—Yes, of lead that is corroded that is used for paint.

3977. MR. MANNING: That is of the whole of the world's supply?—Yes.

3978. Out of the 225,000 tons used for white-lead eighty-five per cent. is used for paint?—Yes, the balance going into pottery glazing and pipe joining, I think, takes the lot.

3979. Eighty-five per cent. of that 225,000 tons of pig lead would represent 191,000 tons of pig lead used for paint?—Yes.

3980. That would be 225,000 tons of pig lead converted into white lead, eighty-five per cent. of that white-lead is used for paint, and therefore 191,000 tons of pig lead is absorbed for the use of paint?—Yes.

3981. Having reached that position, I want you to tell the Board what the mines in which you are interested do with their output?—What is their output, and to what uses is the output applied? Is that lead?

3982. The output of lead and zinc?—And silver.

3983. I want you to deal with the position from the point of view of the person who is responsible for the running of a mine whose output is lead and zinc?—Take the mine at Broken Hill, producing average ore.

3984. DEPUTY-PRESIDENT: You mentioned lead, zinc, and silver?—Yes.

3985. Do they represent the complete output of the Broken Hill mines?—Apart from certain minor by-products there is a little gold, but very little. Each ton of concentrates gives about one shilling's worth of gold. There is a little antimony, which goes into the antimonial lead. There is copper also, but they are all very small.

3986. They are negligible in their relative importance?—Yes. Probably the most important is that in connection with zinc roasting, which is just being developed; that is the sulphur. We will supply about two-thirds of Australia's consumption of sulphur.

3987. MANNING: Take the output of one of your Broken Hill mines, the output of lead and zinc. First of all deal with the position supposing there were a prohibition of the use of white-lead here, what effect that would have, first of all, on the prices you would obtain in the world for your output of lead.

3988. DEPUTY-PRESIDENT: I think you can make the question even larger. We are making this inquiry for the purpose of co-operating with all civilised countries in the prohibition of lead if that prohibition is considered advisable. What would be the effect on the Broken Hill mining industry of the total prohibition of the use of lead in paints throughout the world?—We can have the other question also.

3989. MR. MANNING: If I might say so, I think it will be better in the way you put it, because that shows the effect it will have on the world's market. It is much better, I think, to put it in that way.

3990. WITNESS: Of course the prohibition of white-lead as indicated would mean a very heavy cut in the world's consumption of pig. The figures indicate about 190,000 tons, and I think it is reasonable to suppose that that would bring about a permanently lower range for the price of lead.

3991. MR. MANNING: Is that because the supply would increase and the demand would diminish?—The supply would be in excess of the world's permanent demand. In turn, I should say that would result in competition for the business available, and the weakest producer would be adversely effected. You might almost say he would be put out of business.

3992. DEPUTY PRESIDENT: You think there would be an over supply of lead throughout the world?—I think so, until certain producers had been eliminated from production. I would fear that the brunt of that big cut in the world's production would fall on the producer who is least well able to stand up against it.

3993. The mine with the smallest margin would, you think, shut up first?—The country really; it would be the producing countries as a whole.

3994. MR. MANNING: Take, for instance, one of your mines now producing lead and zinc; to what extent do you rely on your production of lead for the purpose of running your mines and extracting a profit from the working of your mines?—Lead, of course, is the principal metal that we are mining for. The zinc can only be regarded as a by-product really.

3995. DEPUTY-PRESIDENT: What proportion of the total conserved product is zinc?—Of the average run of the ore of the mines along the line of lode, that on mining treatment would yield lead concentrates and zinc concentrates in approximately equal quantities, but the metals recoverable from those particular concentrates would yield lead and zinc in a proportion of about 100 lead and 60 zinc. In order that those figures may tally with previous outputs from Broken Hill, I should say here that I leave out of account a large quantity of zinc concentrate which is produced, together with a relatively small quantity of lead concentrate, from the big tailing dumps at Broken Hill. For many years past that has been quite a big source, particularly of zinc concentrate. Those dumps are, of course, nearly exhausted, and I think they could well be left out of account in taking a future survey of Broken Hill. You would have to come back to the crude ore.

3996. MR. MANNING: That being so, I would like you to follow up this line. You have indicated the extent of the production of zinc and lead in the mines. Your plant and machinery there were first of all devised for the purpose of dealing with the supply of both lead and zinc. Is that so?—Yes. Our position is a very difficult one. In pre-war days Broken Hill, as far as I can ascertain (I came into the business about 1915)—owing to big natural advantages—fine big ore bodies, comparatively easily mined—met low prices by increasing output, which leads one to believe that other producers were put out of the market for the time being. To-day that is impossible at Broken Hill.

3997. Is that on account of the labour conditions?—Well, that will give you the key to it. The underground hours to-day are 70 a week as against about 132 hours in 1916 to 1919, and about 144 hours (that is all round the clock) prior to that.

3998. So that increase of output is out of the question?—Increase of output to anything like those pre-war dimensions is out of the question to-day. Of course, production costs are very greatly dependent upon tonnage. Overhead costs and standing charges are in great part the same whether you

are dealing with a small tonnage or a big tonnage. It does not stop there but it goes through to the smelteries.

3999. What then would be the effect of this cut in the consumption of lead? You say first of all a considerable drop in the prices owing to the operation of supply and demand. That is one thing?—Yes.

4000. You have indicated that as your opinion. That means that you receive a lower return for the product of your mine, as far as lead is concerned?—Yes.

4001. That is clear, is it not that it means a lower return for the lead produced from your mine because of the lower price you get from it, and your inability to make a larger output?—You mean this cut in the world's consumption of lead?

4002. Yes?—It would. That is my opinion, that it would lead to competition, and a permanently lower range of prices for the metal.

4003. DEPUTY-PRESIDENT: It would create excess supply for a feeble demand, followed by lower prices?—Yes, that is the result that I think I can foresee.

4004. Mr. MANNING: You say that you cannot meet the position by an increased output owing to the causes you have mentioned?—No, we are in nothing like the position we were at Broken Hill to meet a permanently lower range of world's prices for metals.

4005. That throws you back on to the zinc product of the mines. You would look to them for any increase in profits?—The zinc is taken into consideration, and so is the silver. We usually credit those so-called by-products in ascertaining where we get to with lead.

4006. DEPUTY-PRESIDENT: What has been the market for zinc in the last several years?—Prior to the war the whole of the Broken Hill output of zinc was bought by the big German companies in the form of concentrate, with the exception of, perhaps, 12,000 tons a year, which were distilled at Port Pirie. The Germans put that concentrate into Belgium, North-eastern France, and their own country, and produced the metals there, and Britain was dependent upon those supplies.

4007. After the war commenced the trade with Germany was brought to an end?—Yes.

4008. And what happened then?—That was all cut off.

4009. Was the market for zinc paralysed?—Britain was producing only about 5,000 tons of spelter a year. That was at the Sulphide Corporation Works at Seaton-Carew.

4010. There was a temporary paralysis, but the demand for zinc must have been renewed?—A fairly big quantity of Australian concentrates was shipped to America then. Prices rose, and allowed a lot of old American plants to be rehabilitated and got to work.

4011. And was the world's metallic zinc produced then in the main by America?—Yes. America had a grip on the whole business. Zinc went to nearly £200 a ton. The British Government unfortunately had to pay what was asked.

4012. Since the beginning of 1919, has there been any readjustment in the supply of zinc?—The British Government were determined that the control of the empire's zinc should not get out of her own hands, and a contract has been made between the British Board of Trade and the Zinc Producers' Association of Australia by which they acquired the whole output of the mines. A contract was made by the Board of Trade for the purchase of the whole exportable surplus of Australia's zinc concentrates, so that Britain could put that where she liked—in Belgium, France, or in Britain. That contract holds good for, I think, another eight years.

4013. Why was the zinc sold by the Australian producers in the form of concentrates, rather than in the form of spelter?—Well, zinc distillation has never paid Australia, and I do not think it ever could pay.

4014. Because of wage rates?—Yes, and the price of coal.

4015. Where is the distillation done—at Port Pirie?—We were distilling up till about a year ago, about 6,000 tons of zinc a year.

4016. Is there any distilling done now at the Sulphide Corporation Works?—No, not at Cockle Creek. There is no distilling going on in Australia to-day. Of course the big electrolytic zinc works in Ridsen are being put up now, and they will be put into operation about November.

4017. Was there ever any difficulty in placing zinc concentrates either before or since the re-arrangement of things—I mean—will the British Board of Trade, representing the British purchasing power, have any difficulty in absorbing the whole of the output of zinc concentrates of Australia?—At the present time there is very little leaving Australia on account of the low price of metal and the high cost of freight and treating in Europe. The metal prices will not meet that.

4018. So that the British agency is not absorbing zinc as readily as the Australian producer would like?—It is being purchased by the Government here, and the British Government has to-day over 600,000 tons at Broken Hill bought.

4019. Mr. MANNING: And you say the contract has about eight years to run?—Yes.

4020. Deliveries are not being made in the meanwhile, but the stuff has actually been bought?—Yes.

4021. It is not taken because of the low price and the high costs?—Yes.

4022. Supposing there were this fall in the world's lead price such as you suggest, how would Australia, in comparison with other countries, be affected by that fall. Would they be in as good or in a worse position than other countries to meet it?—We, of course, do not know what is the cost of production of our big competitors, Spain and Mexico. The mere fact that Spain has been producing throughout this slump, and is producing to-day, and we are producing lead mainly from surface dumps, makes one think.

4023. What does it suggest to you?—Our principal competitors are Spain and Mexico, and a big competitor coming into the field is Burmah, which at present is only producing 2,000 tons a month, but it has plans for and is erecting a new smelter with plans for about 300 tons of lead a day. These are all cheap-labour countries.

4024. THE DEPUTY PRESIDENT: Does the price of zinc move in sympathy with the price of any other metal?—In pre-war days it moved with the price of iron sheets, because galvanising is the principal product.

4025. Was not there a big consumption of zinc in the form of paint, too, making zinc prices subject to fluctuations in lead prices?—I do not know how those two metals moved pre-war. I do not remember. I would not like to specify that. Normally they keep pretty close to the ratio of £17 to £18 for the lead, and £23 for the zinc.

4026. DEPUTY-PRESIDENT: If there were a general condemnation of white-lead throughout the world the demand for zinc would be very greatly increased in the form of zinc oxide, I take it?—Yes. Owing to the fact that zinc has not the durability of lead, it would take very much more metallic zinc in the form of oxide or sulphide than that 225,000 tons of lead to replace it. As zinc is the main substitute, I should say 250,000 to 300,000 tons of zinc metal in pigment form——

4027. Mr. MANNING: Instead of 191,000?—Yes: I was thinking of 200,000.

4028. DEPUTY-PRESIDENT: What proportion of the world's supply of zinc is produced in Australia?—The world's output of zinc in 1912 and 1913 was about 975,000 tons a year. It would average that for those two years.

4029. Not far behind the production of lead?—No, not far.

4030. And of that quantity how much would be produced in Australia?—Of that, the spelter contents of the zinc ore produced in Australia was, in 1912, 197,000 tons.

4031. MR. MANNING: That is about 10 per cent?—No, somewhere around 20 per cent.

4032. DEPUTY-PRESIDENT: The proportions in each case are approximately the same. Would it be possible, then, if there were a condemnation of lead, for the Broken Hill mines to prosper, in the main depending on their output of zinc, to the same extent that they have prospered while in the main dependent upon their output of lead?—I am sure zinc will always in Australia be a by-product in silver lead mining; and it is a remarkable fact that throughout the British Empire—Burmah, British Columbia and Rhodesia—zinc is the by-product in silver-lead mining. I only know one little mine—I may say I have made a study of zinc-lead resources in Canada—that gave a pure zinc ore irrespective of lead. The position in certain other countries is that in America, Spain and Germany they have big ore deposits, zinc-bearing deposits, in which lead is absent or negligible. Zinc concentrate is produced sometimes with copper concentrate, and in the biggest zinc oxide company they mined an ore called franklinite—that is, an ore of zinc manganese and iron. That company further produced zinc and pure zinc, too, almost as pure as the electrolytic-zinc oxide and ferro manganese, or speiegel. Lead does not come into the picture there at all.

4033. MR. MANNING: Can you give the Board an idea at this stage of the position of a Broken Hill mine producing lead and zinc in the proportions you have mentioned, where the cost of lead had decreased in the manner you have prophesied it may decrease? What would then be the position of that mine? Would it be thrown back on to zinc?—That would be impossible, because Broken Hill can only produce zinc profitably to the extent that it can produce and market profitably its lead and silver.

4034. The two things go hand in hand?—Yes, as far as Broken Hill is concerned, and, as I have indicated, as far as the Empire is concerned; so that the position is, the Empire would be driven to dependence on foreign countries for zinc.

4035. I am leading up to the cost. The Broken Hill works were set up with that fact in view—the two things had to be done hand in hand?—Yes. All the concentrate mills are provided to produce the lead and zinc concentrate.

4036. What effect would a diminishing demand for your lead have on production at Broken Hill? Would the cost of production remain the same—I do not mean the expense rate?—You mean on the lower tonnage produced? The cost of production goes up very rapidly. That applies not only to Broken Hill, but to the smelteries.

4037. Would it be more correct to say your expense rate goes up?—Yes, our expense rate.

4038. It is possible your collateral cost of production would remain the same as it is at the present time, even though your output of lead were considerably diminished. That would mean, of course, your expenses would increase?—You mean many of our outgoings would remain the same?

4039. Yes. Your products would diminish, and, therefore, your expense rate would increase?—Yes.

4040. I suggest that as a way of putting it?—Quite so.

4041. DEPUTY-PRESIDENT: If there were such a demand for zinc at such a productive price as to make you mine all the zinc that you could mine, would your rate, assuming that the price of lead had fallen very considerably, be marketable in any such way as would enable you to carry on operations on the basis of that re-adjustment?—You mean the counterbalancing of . . . ?

4042. Yes. To what extent would zinc have to go up to counterbalance . . . ?—Our surplus is sold to the British Board of Trade for eight years ahead at a fixed price.

4043. A price fixed in relation to the present price of lead by yourselves?—No, I mean our zinc concentrate.

4044. I understand that, but in accepting the price offered to you, you assumed lead would remain practically at its present value?—Yes, we had regard to the relative pre-war values of lead and zinc when that contract was made.

4045. And you would not profit by any increase in the price of zinc owing to the condemnation of white-lead for a period of at least eight years?—Only to the extent we would be producing metals.

4046. But your price is fixed eight years ahead?—Only for concentrates.

4047. I understand the distinction. You explained that you produce and sell spelter?—Yes.

4048. MR. MANNING: On to-day's metal prices, does your output of the three metals meet the cost of production?—No, not from mining underground—not from crude ore.

4059. DEPUTY-PRESIDENT: You can only preserve the margin by the use of stacks of tailings on the surface?—Yes.

4050. MR. MANNING: What would you, as an expert, say of the chances of mining zinc alone at Broken Hill?—The chances are nil. There are at Broken Hill certain ore bodies called zinc lodes, quite respectable ore bodies, as far as size goes. I do not know that I can call them "ore," because ore is something you can turn into a profit. There are zinc lodes containing negligible quantities of lead and silver, but they never paid to mine, even before the war.

4051. As far as you can estimate, the zinc in conjunction with lead could not be run together, because the price of zinc is fixed for the next eight years?—Yes; that is our limitation there.

4052. DEPUTY-PRESIDENT: Are these pure zinc ore bodies inside the area already owned and controlled by the mining companies?—Yes; the principal of which are in the South blocks. There is quite a big body there of zinc lode.

4053. MR. MANNING: How would other countries compete with Australia if there were prohibition of white-lead in France and elsewhere, and a consequent increase in the value of zinc oxide, having regard to the deposits in some foreign countries, such as Scandinavia?—We are hobbled, as it were, for the next eight years; we are placed at a disadvantage.

4054. I think you have also indicated, have you not, that certain of the important deposits of zinc in the United States, Spain, Germany, and so on, are practically free from lead?—Yes.

4055. So far as that is concerned, that would throw the trade over to those foreign countries, as far as the world's demand is concerned, for zinc oxide?—Yes; the foreign countries would benefit by white-lead prohibition. That is not a matter of opinion; I think it is a matter of certainty.

4056. DEPUTY-PRESIDENT: Has the British Board of Trade taken a certain percentage of the whole of your output of zinc concentrates, or has it taken the whole out?—The exportable surplus. Australian requirements are first met. They have protected themselves by another contract

on the metal end; that is, on the official London price basis, they take the whole exportable metal produced in Australia.

4057. As well as concentrates?—Yes.

4058. So you can only make an increased price on spelter if you sold that spelter in Australia?—No. They buy the metal, not as they buy the concentrates, but on the basis of the average London price of monthly deliveries in London, plus a certain premium for high grade zinc as against spelter.

4059. Are you at liberty to distil as much of the concentrates as you choose to distil?—Distillation is impossible in this country. We have a plant at Port Pirie, and the capital is already invested.

4060. But if, owing to the condemnation of the use of white lead, the price of zinc increased enormously, say 100 per cent., you then could afford to manufacture spelter in Australia?—I think zinc distillation would not suit Australia—the Australian does not like it. It means seven days a week, you start at 5 or 6 o'clock in the morning and work every day of the week, in and out; whereas you could carry on a small operation such as we are carrying on at Port Pirie, to extend zinc distillation in Australia, I think, is impossible.

4061. Mr. MANNING: Owing to the factors you have mentioned, that foreign countries can compete more successfully with us, may we take it that in your opinion if the prohibition of the use of white-lead in paints is made effective, it might result in Broken Hill closing down altogether and going out of business?—It might, yes.

4062. For the reasons you have already suggested?—It is a case of the survival of the fittest. My point is that the brunt of it is likely to fall on the weakest produce. That is, the one whose cost of production is highest.

4063. Broken Hill being the weakest, because it can only produce zinc in conjunction with lead, whereas certain foreign countries can produce zinc by itself?—Yes, and there are the conditions under which we have to operate: very short hours are alright, if your competitor is working the same hours, but if he does not do that—

4064. But you are brought directly into competition with the rest of the world in this matter?—Yes, for 90 per cent. of the output.

4065. And if the use of lead is prohibited?—The Australian tariff cannot assist us. We have to depend upon ourselves.

4066. So much, then, for the actual mining at Broken Hill. What about the smelteries in which you are concerned?—What effect would it have upon those—there is Port Pirie and Cockle Creek?—The effect is just the same upon those as upon the mining and milling operations.

4067. The smelteries are dependent upon the mines?—Yes, absolutely dependent upon Broken Hill. Any trade outside of that is a mere bagatelle.

4068. In those three centres—Broken Hill, Port Pirie, and Cockle Creek—about how many men altogether are directly employed?—Normally about 10,000 or 11,000, I should think.

4069. And I suppose you cannot estimate the number indirectly employed?—The population of these places gives a very fair indication. I think Broken Hill has a population of something like 20,000. Port Pirie has something like 12,000, and Cockle Creek is mostly in the population of Newcastle, but about 2,500 people are dependent upon Cockle Creek works. Of course, there are all those people, also, who are connected with the service industries—coal, coke, mining, timber, general supplies, and transport. It is very hard to say how many people are dependent upon any industry with the ramifications of Broken Hill.

4070. With regard to the electrolytic zinc company, would that be effected in any way by prohibition?—We are dependent for our raw material there,

for concentrates from Broken Hill, until such time as we open our own mines in Tasmania. Even there the ore is zinc, lead, and copper so that lead comes into the picture again. You must produce lead.

4071. DEPUTY-PRESIDENT: Is there a high proportion of lead in the output, there?—I do not remember the figure, but it is quite appreciable. Even in the Broken Hill concentrates there is normally 47 per cent. zinc and 7 per cent. lead, so that in producing 100 tons of zinc—that is, the Electrolytic Company—you produce about 15 tons of lead, which is quite an appreciable factor in cost.

4072. Would you mind just indicating the amount of capital you have invested in these enterprises?—It is very hard to estimate what is invested in Broken Hill. Will I put it in as replacement value, or what? I should say at Broken Hill, Port Pirie, Ridsen, and Cockle Creek the capital invested is £10,000,000.

4073. DEPUTY-PRESIDENT: That is the actual sacrifice of the shareholders which you are referring to now?—You are not giving us the valuation on the replacement basis?—No, you could not replace, in these mines, for that figure. All the underground development of the mines it is hard to put a value upon.

4074. You mean that what has been expended in that way is something contributed out of the pockets of the shareholders, and out of profit which would otherwise have gone into their pockets?—I do not think the replacement values could be stated. There will be £2,000,000 invested in the Ridsen enterprise very shortly.

4075. Mr. MANNING: With regard to the British Australian Lead Manufactures Proprietary, Limited, what capital do you estimate there?—With the Corroding Works at Cabarita and the Mixed Paint Factory at Adelaide, I think it would represent £250,000.

4076. And you consider that those works would be seriously jeopardised? Yes. I regard the institution of this inquiry as probably far reaching. I take it, that it will lead to legislation of some sort in this State, and that it will influence similar legislative measures in the other States; and it must influence the Commonwealth Government in the reply it will make to the Questionnaire from Geneva in October. If Australia, which normally is probably the biggest exporter of lead in the world, 95 per cent. of it coming out of this State, advises the prohibition of white-lead, I think any arguments that big primary industries would be adversely affected would fall very flat. New South Wales has more to lose than any other country in the world through prohibition of white lead, if we were pressed back to the position I have indicated, that is, that it reduces lead prices. That means competition for the market. Whether we could stand up to it, time alone will show. That is the menace that I see, as connected with all these concerns.

4077. What is your opinion as to whether you can stand up against competition? You have told us the factors in considering the matter?—You never know the other fellow's strength really, until you have to meet him. Times have not been normal, and we have not been working for eighteen or nineteen months, and are under very great disabilities, there is no question about that, particularly through our inability to mine tonnage.

4078. I think you have mentioned all the matters you desired to put before the Board?—I think so.

4079. Mr. COXINGTON: From the standpoint of the Broken Hill Company you are aware, I suppose, that the question of subsidising the manufacture of white-lead was dealt with—that the Inter-State Commission, presided over by Mr. Piddington in about 1913-14, dealt with the question and reported upon it?—Yes. I think white-lead received additional

protection under the tariff the other day, but what occurred with regard to that Commission in 1913 I do not know.

4080. I am putting it in this way merely to show you that you have had fair warning from proper authority that there was a likelihood of something, at any rate, being done in regard to the manufacture of white-lead paints. What the Commission said at that time was as follows:—

“Most of the other European countries have very strict regulations in force and make lead poisoning an accident in connection with workmen’s compensation. It is not within the province of this Report to make a recommendation as to whether the manufacture and use of white-lead should be prohibited in Australia, as inquiry has not been particularly directed to that issue, but the Commission, knowing the general tendency of the industry abroad, is of opinion that”

4081. DEPUTY-PRESIDENT: Is that corroborated by any schedule; is there any foot-note there; are you reading from the Report of the Commission?

4082. Mr. CONNINGTON: Yes.

4083. DEPUTY-PRESIDENT: Does it refer to any evidence it took with regard to the conditions throughout the world?—It makes there a very broad statement as early as 1913. My opinion is that the statement is incorrect.

4084. Mr. CONNINGTON: That may be, but the point is—

4085. DEPUTY-PRESIDENT: Unless there is something to justify the statement by Mr. Piddington, I will not accept it.

4086. Mr. CONNINGTON: I take it that it was a Commission appointed by the Government—

4087. DEPUTY-PRESIDENT: It will not impress the Board a bit unless it gives reasons for its determination. You cannot give that as evidence. If you are opening a question to the witness, well and good; but if you propose to give that as evidence to impress the Board, you will have to call Mr. Piddington or give some reasons for that determination.

4088. Mr. CONNINGTON: I do not propose to call Mr. Piddington, of course. If I am prevented from putting in the Report of the Commission I will have to let it go at that.

4089. DEPUTY-PRESIDENT: You will not be prevented from doing that. The question is how much you are putting in now? We will take it for what it is worth. If you are putting in the Report I will take it you are putting in the evidence on which that Report was based.

4090. Mr. CONNINGTON: I am referring to the fact that this Commission reported adversely against white-lead being—

4091. DEPUTY-PRESIDENT: I am not talking of that at all. I am speaking of the statement by the Commission that in all other countries of the world in 1913 there was a general inclination to prohibit the use of white-lead in paints.

4092. Mr. CONNINGTON: I think the Commission had nothing more to go upon, probably, than we have to go upon. They read reports from elsewhere—

4093. DEPUTY-PRESIDENT: That Commission sat eight years ago, and a good deal of what we have had before us has been of much more recent date than that.

4094. Mr. CONNINGTON: I can only say it was a Commission appointed by the Government. The Board will know the circumstances of its appointment—that there were appointed three persons who may not have been sympathetic to either side. I think they may be said to be persons who would do a fair thing.

4095. DEPUTY-PRESIDENT: I am not discussing that phase of it all. My attention was arrested by a statement made in the course of the report, that

there was a general tendency throughout the world to prohibit the use of white-lead. That was in 1913.

4096. Mr. CONNINGTON: The point I had in my mind was to draw the attention of the witness to the fact that this Commission—and I have the greatest respect for the chairman of it—at that time did not make a recommendation to the Government—

4097. DEPUTY-PRESIDENT: It was not asked for such a recommendation; but in the course of making the recommendations which were asked for, it makes a statement with regard to the conditions of the law in other parts of world.

4098. Mr. CONNINGTON: That is so

4099. DEPUTY-PRESIDENT: What is the justification of that statement? Apparently there is something in the evidence to justify it?

4100. Mr. CONNINGTON: They apparently did not give the evidence here.

4100½. DEPUTY-PRESIDENT: That is why I ask if there is a footnote referring to schedules, indicating the condition of the laws abroad.

4101. Mr. CONNINGTON: It was not my intention at this stage to take up the time of the Board by reading the whole article. It is a long article, and they give their reasons as they go along.

4102. DEPUTY-PRESIDENT: I understood you were laying the foundation for a question, and in doing so you quoted a statement that apparently is questionable.

4103. Mr. CONNINGTON: My real intention was to make it clear to the witness, and you just stopped me as I had reached the point I wanted information upon. After I have made the statement you will see my authority for doing so, and I take it the Board will carefully peruse what any other Commission has done, and find out what evidence it acted up, and use its own judgment.

4104. DEPUTY-PRESIDENT: Certainly.

4105. Mr. CONNINGTON: It deals with the subject, and the Board will require to use its own discretion as to whether it will be guided by the report or not. Everything I put in is upon that assumption. The report goes on—

“ . . . is of the opinion that for the present no tariff inducement should be given to manufacture white-lead for paints in Australia,

4106. Mr. MANNING: Is this the question?

4107. Mr. CONNINGTON: I am asking the witness is he aware that, as far back as 1913, a responsible Commission sat for the purpose of inquiring into cases wherein it was thought some assistance should be given to establish an industry in Australia. That was the express purpose for which this Commission was appointed.

4108. DEPUTY-PRESIDENT: Then it was not necessary to premise with the statement that the manufacture, or use of white-lead, had been condemned very generally abroad.

4109. Mr. CONNINGTON: It may have been, perhaps, that this Commission ought not to have made such a reference.

4110. DEPUTY-PRESIDENT: I say it was not necessary for the purposes of your question. I do not mind the incident a bit, but it will indicate to you, I hope, that you cannot altogether rely on the statement of the Inter-State Commission that there was a certain feeling with regard to white-lead in operation abroad; a feeling which warned all white-lead manufacturers here that the use of the commodity which they were making was to be prohibited.

4111. Mr. CONNINGTON: When we come to the point as to what has happened, or is likely to happen in other parts of the world, I am going to quote from the various volumes I have before me.

4112. DEPUTY-PRESIDENT: But remember that you warned the witness, or suggested to him, before you put the question to him, that what was done in 1913 constituted a warning to those engaged in the trade that the trade may be taken from them.

4113. MR. CONNINGTON: That is so.

4114. DEPUTY-PRESIDENT: Then you quoted Mr. Piddington's statement that throughout the world there was a tendency against the use of white-lead.

4115. MR. CONNINGTON: That is how Mr. Piddington led up to his remarks on the question of assistance being given or not given to this particular industry.

4116. DEPUTY-PRESIDENT: Then your question to the witness was; whether he was aware that this Commission had regarded unfavourably a proposition that the manufacture of white-lead should be assisted through the Customs?—The three do not necessarily stand together.

4117. MR. CONNINGTON: The point in it is this: if the Broken Hill people complain to-day because of the probability, or possibility, of a restriction or prohibition upon the use of lead in paints, and that it will seriously dislocate their business and interfere with their financial prospects generally, I point out to them that an authoritative body did, as far back as 1913, recommended adversely against subsidising the white-lead industry from a producing point of view. It may be that something has happened which the witness can tell me of, since then, of which I am not aware at present.

4118. DEPUTY-PRESIDENT: I do not mind that, if you put the question in that way.

4119. MR. CONNINGTON: That is what I intended to do. I take it there will be a lot of things before the Board which it will have to go into. Probably the evidence or some of the evidence given by the witness to-day is comprised of quotations and opinions which he has read. He has not spoken from his own intimate knowledge, but I did not object to that. I take it the Board will consider the whole of the matters put before it, as long as it is satisfied a witness is giving his honest view of what he has read or heard—the Board will put these things all together finally, and out of the mass try to arrive at some fair conclusion. I am not asking the Board to be bound by what the witness said of prospects of something starting in America, the extension of business, and so on. I am pointing out that other witnesses have been called who have given evidence of what they have read and their opinions as to the situation throughout the world. The Board will probably weigh such evidence and see what value can be attached to it.

4120. As far back as 1913 the question of establishing the manufacture of white-lead paints came before the Inter-State Commission and was adversely reported on. You were not aware of that, were you?—I was not aware of it.

4121. Do you know whether since then anything has happened which would justify you in believing that the Government, or that Commission, has altered its views?—Was that a report to the Commonwealth Government?

4122. Yes?—The only indication is that the Commonwealth Government has further assisted the industry. I understand the tariff on white-lead has been raised.

4123. You are of opinion that since this report was made the Government has assisted the white-lead industry?—Yes.

4124. Are you quite sure of that?—You can refer to the tariff, but it is my belief the duty on white-lead has been raised.

4125. That since this time, there has been a higher tariff imposed?—Yes.

4126. With regard to the use of white-lead in paints, you know that all over the world the question of prohibiting or restricting its use has been

considered by different Governments, or Commissions appointed under those Governments?—Yes, certain Governments.

4127 And the question of doing something to minimise the risk to painters and others using white-lead paints has been, although not a burning subject, a serious topic throughout the world for quite a number of years?—Yes, I believe the question of the protection of workmen has been considered.

4128. And would the people of Britain be seriously affected if the use of white-lead in paint is prohibited?—Yes, as a big producer of corroded lead.

4129. Mr. CONNINGTON: I understand that a Government Commission recently issued a report with regard to the use of white-lead in paints, recommending——

4130. Mr. MANNING: What has this to do with the matter, whether or not the witness knows a Commission in England made a certain recommendation?—The fact that a Commission in England did make a recommendation may be relevant, but whether or not the witness knows it is quite immaterial.

4131. DEPUTY-PRESIDENT: It does not do any harm, Mr. Manning. The witness may, or may not, know the literature on the subject. If Mr. Connington is going to base further questions on a knowledge of the literature the question is quite proper.

4132. Mr. CONNINGTON: I do not want to take up time, and no one will leave before I do when I feel I cannot be of service to the Board any longer. We are dealing with a big subject, and I do not want to harm a company any more than the Board does.

4133. DEPUTY-PRESIDENT: No, you are here to help the Board.

4134. Mr. CONNINGTON: Certainly I am.

4135. You know that there was such a report issued?—Yes.

4136. That deals with carriage painting, and a similar report was made with regard to the use of lead for house-painting?—Yes.

4137. Pig lead is used for many purposes other than being turned into white-lead, is it not?—Yes, about 80 per cent. of it is used for other purposes, including red lead.

4138. What you say may occur, but if the Board is satisfied that white-lead used in paint is dangerous to health, the question is this: Do you think the Board should be altogether influenced by what might happen to the industry of mining, so far as pig-lead is concerned? The public question is whether it is dangerous to health. Secondly, if it is detrimental to health, ought its use to be prohibited—if the full effects are unavoidable?—I regard the whole question as a challenge, and it is a question of whether reasonable regulations cannot be framed in order to protect a painter, just as they have introduced regulations into the corroding works. Messrs. Bergers' representative will give you evidence of what can be done in the manufacture of paints, and I think, as a layman, similar precautions can be taken to protect the painter.

4139. Then we start off admitting lead can be harmful. The question is, can we minimise its ill-effects upon those using it?—Yes.

4140. On that point would you like to give any evidence?—I am not a painter.

4141. You cannot suggest any way, assuming the Board is in favour of the use of lead being restricted, if not prohibited, some precautions being taken with regard to its use;—are you in a position to offer any help in that respect?—I think generally the problem is the same as we have to deal with in the mining and smelting industry. It is the suppression of harmful dust, and I think that can be effected.

4142. But you are not personally in a position to advise how it can be done?—I do not think any of the labour leaders or members of the unions

ever suggested that because dust was giving trouble at Broken Hill, the industry should be closed down.

4143. Mr. CONNINGTON: But they are getting pretty close to closing down in other parts of the world, according to the British Commission's report, and that was not a Labour report.

4144. DEPUTY-PRESIDENT: What the witness said was, there was no suggestion that the mines should be closed down at Broken Hill because of the dust trouble.

4145. Mr. CONNINGTON: But he has pig-lead in his mind, and I have white-lead in my mind.

4146. DEPUTY-PRESIDENT: The witness was giving the condition of affairs at Broken Hill. Although the men wanted all sorts of precautions taken to protect their health, they never suggested the mines should be closed down—because that would be the best protection of all. The witness says it was never suggested by the employees' organisations at Broken Hill that the mines should be closed, but that they were prepared to be content with precautions.

4147. Mr. CONNINGTON: The inquiry by this Board is as to the use of white-lead in paints.

4148. DEPUTY-PRESIDENT: The witness suggested to you it might suffice if precautions in respect to the health of painters using white-lead were taken, rather than to prohibit the use of white-lead in paints.

4149. Mr. CONNINGTON: Our position is different to that of the miners in this respect, that the prohibition of the use of white-lead in paint will not close our industry down. It may mean it will foster another industry, the zinc-oxide industry.

4150. Mr. MANNING: This seems very incomplete, the matter which Mr. Connington mentions, in the report.

4151. DEPUTY-PRESIDENT: What is the volume?

4152. Mr. CONNINGTON: It is "Report on Paints and Colours, Varnishes and Paint Oils." It is a report presented and ordered to be printed on 20th August, 1915—the Report of the Inter-State Commission.

4153. DEPUTY-PRESIDENT: What is the date under the signature of the authors of the report?

4154. Mr. MANNING: It is 11th August, 1915. This commission apparently has gone about Australia doing all kinds of things, and at various times of the year they brought out a report and this particular one was brought out in 1914, while they started their peregrinations in 1913. That is the only significance of the year 1913. I think this inquiry into Paints and Colours was a tariff inquiry, really, and had nothing to do with the establishment of new industries, because the Commissioner says at page 2 of the Report:

"The present duties are enumerated in page 3 of the Appendix.

The obligations in connection with the industry are set out in pages 7-11 of the Appendix and are of very varied and complicated character."

That is a reference to Customs Duties, I should imagine.

4155. Mr. CONNINGTON: Their duty was to recommend how the tariff was to be regulated.

4156. Mr. MANNING: It had nothing to do with the duties of the Commission—it was the Customs Duties.

4157. Mr. CONNINGTON. The Government was contemplating a protective tariff, and this Commission was appointed for the purpose of reporting to the Government.

4158. Mr. MANNING: It also says:

"The official statistics of the local production of paints, varnishes, dryers, size, putty, etc., are complete only for the year 1913 (page 15 of Appendix). . . ."

The next paragraph says :

"The importations of paints and the raw materials for their manufacture, for the years 1909 and 1913, were as follows:"

Then he gives the manufactured paints and the duties imposed by the tariff; then he deals with linseed oil, tariff item 234 (i). A couple of pages further on he deals with "white-lead and other white bases," and gives the tariff items. That is what the Commissioner is doing—he is inquiring into the tariff.

4159. DEPUTY-PRESIDENT: If you tender that for the Board's consideration, Mr. Connington, will you see if you can tender with it some reference to the instruction which was given to the Inter-State Commission—not the appointment of the Commission, but the instruction received by that Commission which justified it in holding that inquiry.

4160. Mr. CONNINGTON: Yes. When I am addressing the Board (I think I have the right to do so later) I shall go into all these things which I am merely touching upon now, quite fully. If Mr. Manning desires any further information with regard to the reports of the Commission I will endeavour to put the whole of the facts before the Board. It is to save time that I am merely touching upon the points I think can be dealt with quite effectively and in a better way later on, when the witnesses are away.

4161. Mr. MANNING: I have no objection to anything. I am not as familiar, perhaps, with the subject as I ought to be, but it seems to me immaterial what Mr. Piddington said in 1914 or 1915 about the operation of the tariff. I do not know, but it may be of the greatest importance.

4162. DEPUTY-PRESIDENT: I think Mr. Connington referred to Mr. Piddington's report by way of suggesting to the witness that the trade generally—those who produce the article and those who corrode the lead—were warned by Mr. Piddington that their lease of life must be but short in view of developments abroad—that is, that they were to be prepared for the cessation of the lead-corroding and white-lead making industries.

4163. Mr. MANNING: I am sure Mr. Piddington would be very flattered if he thought they paid that much attention to the recommendation.

4164. Mr. CONNINGTON: If people are going to establish an industry in the country, with a warning like that from a responsible Commission hanging over them, I think they would like an assurance from the Government as to what extent it was likely to act upon that recommendation.

4165. DEPUTY-PRESIDENT: Would it be regarded as a warning unless the question of whether the industry should be preserved was in issue before Mr. Piddington;—that is what we want you to tell us. If the reference to the Commission raises that question for its consideration, then, in so far as it is an expression of opinion, we will take that into account. But if the reference to the Commission did not raise the issue at all, if it is a mere expression of opinion, what importance should be attached to the paragraph of the report to which you have referred?

4165A. Mr. CONNINGTON: The report is a fairly extensive one, and I was trying to——

4166. DEPUTY-PRESIDENT: Were there any parties appearing before Mr. Piddington to justify the extension or the existence of the industry of white-lead corroding? Were there any parties whose interest it was to point out what was the exact condition and effect of legislation abroad upon the subject of white-lead? If he assumed from the general knowledge of foreign laws that there was a tendency to legislate against the use of white-lead, then he might very innocently have drifted into a substantial error.

4168. Mr. CONNINGTON: He apparently had studied Thomas Oliver's book, which I have here. He makes reference to it in his finding, and refers to the fact that the White Star Manufacturing Co., Ltd., Porto Works,

South Melbourne, after fifteen months' experimenting, had just erected new plant to turn out about 20 tons per week. Further down he said: "The manufacture of white-lead is everywhere looked upon as dangerous to the health of the workers in the industry, and special precautions and supervision are insisted upon by all Government authorities." Then he says: "Not only is the manufacture of the dry white-lead dangerous, but the operation of mixing with oil is also described by Sir Thomas Oliver, an eminent authority, in his work, 'Diseases of Occupation,' as unhealthy, and require special care to prevent lead-poisoning." Then he said the Commission had had the benefit of consulting with Mr. W. Percy Wilkinson, Commonwealth Analyst, in considering this important matter. That it had also reviewed the evidence and report of the Departmental Committee, appointed by the British Government, "to investigate the danger attendant on the use of paints containing lead in the painting of buildings." That is the one we have here, I presume. Then he states what the Commission decided, and so forth. He says they confined the use of white-lead to 5 per cent. This report seems to me historical, because Mr. Piddington said on page 10:

"Of the 11,050 tons of paints and colours ground in liquid and prepared for use, imported in 1913, it is estimated that fully 80 per cent. was white-lead ground in about 6 per cent. to 7 per cent. of oil; hitherto practically all this has been used by the painter as the base for making paint up with colours and linseed oil. White-lead is imported in packages of 1 lb. and upwards, but at least three-quarters of the imports come in in packages of over 14 lb. in weight to get the advantage of the cheaper duties.

"Up till now, very little dry white-lead has been used by the Australian paint manufacturer, but, if the bulk of the trade in better-class paints prepared for use is secured, white-lead may be used in the dry form to some greater extent. . . ."

He is referring there to the evidence of the analyst.

4169. DEPUTY-PRESIDENT: The Interstate Commission wrote the Report in 1915 if they were able to refer to the British Report of 1914.

4170. Mr. WILLINGTON: Can you say in what countries prohibition has been put into effect?

4171. Mr. CONNINGTON: We thought until yesterday there was only one country where the use of white-lead was prohibited—France, but according to a cablegram I received yesterday the law is not in force in that country.

4172. Mr. WILLINGTON: So Mr. Piddington's view is wrong—it was not prohibited in various countries.

4173. Mr. CONNINGTON: He also said on page 10: ". . . the time may not be far distant when the prohibition of its manufacture and use may have to be considered."

4174. Mr. WILLINGTON: On what did he base that?

4175. Mr. CONNINGTON: On the view generally held that it was dangerous to health, and that in other countries they were considering the prohibition or limitation of the use of it. It is only Mr. Piddington's opinion, borne out by the fact that this Board is sitting to-day to consider its prohibition.

4176. Mr. WILLINGTON: Can you say in which countries it has been proscribed?

4177. Mr. CONNINGTON: In none, apparently. There is a law in France prohibiting its use, but I understand that law has not been put into effect; but as far as we know it has not been rescinded; it is still, probably, on the Statute book.

4178. DEPUTY-PRESIDENT: Is it not significant that although the British Government made that recommendation in 1914, that the use of lead in paints should be confined to the proportion of 5 per cent, there has been no

legislation in Great Britain during the last seven years to give effect to that recommendation?

4179. MR. CONNINGTON: It is most significant, and these are factors which I presume will be taken into consideration by the Board. My main question is, Is it dangerous enough to consider the health of the community at stake? The Board will have to take all the factors into consideration, and the more matters we can give you, the more opinions on the subject, the better the Board will be able to determine the matter.

4180. DEPUTY-PRESIDENT: That is quite right, and we will be very grateful to you for such information as you can give us.

4181. WITNESS: The Mines Committee took a serious view of this question. They have nominated three members—Mr. Klug, Mr. Weir, and myself—to give evidence. But I advised them I would give an opinion whether I thought my evidence might be amplified. I think, however, theirs would really be a re-statement of the position I have set out.

4182. DEPUTY-PRESIDENT: We will leave it to Mr. Manning to determine whether it is necessary to call those witnesses.

(Witness retired.)

(The Board at 12.45 p.m. adjourned until Friday, the 8th instant, at 10 a.m.)

SEVENTH SITTING.

FRIDAY, 8 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. WILLINGTON

MR. ROUTLEY

MR. COOPER.

THEOPHILUS LINNELL O'REILLY, recalled, further examined
by BOARD:—

4183. DEPUTY-PRESIDENT: You were to supply the Board with some further information?—When I was here last Monday I mentioned that there were three recorded cases that have to do with lead, in the Railway Department, in the last seventeen months, and the third case, it will be remembered, was unnamed. I have since been able to obtain the file of that case.

4184. Do you produce that file?—Yes.

4185. What is the name of the man?—George Henry Champion.

4186. Will you give us the effect of the record in that case?—He entered the service on 27th July, 1912, and that is the date the file shows he was passed for employment as a painter.

4187. As a man in good health, satisfying the various tests with respect to vision, hearing, and general conditions of health?—Yes. The next we know of him is that a medical certificate was sent in from his branch in the month of May of this year. It is dated 10th May, and is from Dr. J. A. Lawson, of Auburn, and states, "This is to certify that George Henry Champion is suffering from lead-colic and is unable to follow his occupation." That has been endorsed by his branch, that he was absent from the 10th May to 15th May, 1921, and resumed work on the 16th May. I think that is all there is to say.

4188. DEPUTY-PRESIDENT: That record should be of interest to you, Mr. Connington, because of the suggestion you made several days ago that we might review the whole of these records. You see, this is a record of an acceptance. Where there has been a refusal to accept a man for service, of course the record may contain more, but how much more one can only guess; but the record of acceptance for service contains remarkably little and is not likely to contain anything of value to the Board.

4189. Mr. CONNINGTON: There will be a witness here at 2 o'clock from the Coachpainters' Union who will give evidence of his experience in the railway workshops and also submit statements of the names of a number of persons whom he claims are now or have been suffering from lead while in the railway service. If we can get the rejects there may be some information.

4190. DEPUTY-PRESIDENT: The record, may be, merely runs to this extent, that the man is not in sufficiently good health to justify his employment.

4191. Mr. CONNINGTON: Yes, that is what one would imagine from this certificate.

(Witness retired.)

FREDERICK GEORGE MENDEL, recalled, further examined by
BOARD:—

4192. Mr. MANNING: You produce two specifications in which you specify zinc oxide?—Yes.

4193. In carrying those specifications out, what would be the percentage of lead and zinc in the paint used?—I have found no difference as far as the lead and zinc are concerned.

4194. But you would not have it all zinc—would you not mix lead with it?—In this case, all zinc; but I have specifications of lead in zinc.

4195. It is not an infrequent thing to have a specification for the use of both lead and zinc in the same paint?—It is pretty frequently the case for use that way.

4196. Supposing you were applying three coats, would you find with that number of coats the zinc and lead mixed would cover the space better and make a more effective film than would the zinc alone?—No, I do not think so.

4197. Does it not require very much more zinc oxide paint to cover the surface than it does of lead?—With my experience I do not think there is any difference at all, only in the matter of white paint, where it would require an extra coat.

4198. Do you say that in your experience the same quantity of zinc oxide would cover the surface in the same way as would the same quantity of lead?—In my opinion, yes.

4199. Have you ever made a test of the weight?—No, I have not.

4200. How long have you been carrying on business?—I think it is two years.

4201. Have you been working all the time during that period?—Yes.

4202. What do you use for priming the surface with when using the zinc oxide paint—say, for the first coat?—I generally use zinc and oil the same.

4203. You start straight off on the bare surface with the zinc oxide paint?—Yes.

4204. And in your opinion it really requires the same amount of zinc oxide paint to cover a given surface?—Yes, with pigments.

4205. In this specification to Mr. Perritt, you mention water paint, "Walls between 225 and 227 to be colour-washed." Is that a sort of kalso-mine?—No, not necessarily.

4206. A wall paint?—Yes.

4207. Is that one of the lithopones?—I do not understand you.

4208. What sort of paint is it?—It is made out of lime and water.

4209. Do you make it yourself?—Yes.

4210. It is not one of the proprietary non-poisonous paints?—No, it is something I make up myself.

4211. What is your mixture?—There are three or four kinds. You can make it out of mill-white.

4212. What is its base?—Mostly mill-white. That is what we generally use now.

4213. DEPUTY-PRESIDENT: What is mill-white?—I understand it is composed of zinc, but that is only from hearsay.

4214. Mr. MANNING: All you know about it is the result it produces?—Yes.

4215. You have not studied this question at all?—Only from a practical standpoint; that is all.

4216. On what surfaces do you use this colour washing?—Where it has been used before, as a rule. That is why it is specified there; it had been colour-washed before.

4217. All you say here is, "Walls between 225 and 227 to be colour-washed." Are they inside walls?—Yes.

4218. And you expect to find them at times, but not always, kalsomined—the inside walls of a room?—Yes, they are under cover.

4219. Would you say they are the inside walls of a room?—No, they are passage-ways.

4220. Like a hall in a house?—Yes, but open to the street at one end.

4221. A passage such as occurs between two houses, with a cover on top?—Yes.

4222. You would regard that as some inferior colour?—Yes.

4223. In this specification given to Mr. Perritt—is he a master painter?—No.

4224. There is a master painter who spells his name "Perrett," but this man in the specification had nothing to do with the trade at all?—Nothing at all.

4225. Have you known him for any length of time?—No. I was introduced to him by a house and land agent to give him a price. He is from Winchcombe and Carson's.

4226. Then you proceeded to find out from Mr. Perritt what he would have?—He asked me what I would tender for, and I advised him to use zinc.

4227. It was your advice, and not his request?—Yes.

4228. Was there any architect engaged on the job?—No, that is my specification.

4229. Your work was not subject to any supervision that you know of?—No.

4230. I see here that you say here, "Clean down and paint two coats of zinc white." What does the cleaning down mean?—Dusting down and sand-papering the walls before they are painted.

4231. What does the sand-papering consist of?—Rubbing the walls down to get the rough surface off.

4232. After the rough surface has been got off the walls, the old paint would still be on them—the old surface would be smoothed down?—Yes.

4233. And what is the old paint?—I think it is lead.

4234. Suppose you were painting with zinc oxide, starting to paint a wall that had not before been painted, how many coats of zinc oxide would you consider sufficient covering?—On a new brick wall I would give it one coat of lime and three coats of zinc oxide.

4235. Is the one coat of lime always the preparatory coat to the zinc oxide paint?—No, not necessarily zinc oxide.

4236. But when you are using zinc oxide on a new surface, do you always first prepare it with the lime?—Only on a brick wall. The lime is only intended to fill up the pores in the bricks so as to try and get an even surface.

4237. In specifying zinc oxide paint for a new wall that had not been painted at all, you would give it one coat of lime and three coats of zinc oxide?—Yes.

4238. And you consider that would be sufficient?—Yes.

4239. Would the same be sufficient on woodwork? Suppose you wanted to make it as good a surface as you get with lead-paint, would three coats be sufficient?—I have found it so by using colour, but not in white.

4240. How many coats would it need in white?—I would suggest four, and that is good—it wants four.

4241. And suppose you were using the lead-paint, how many coats would you have?—Three coats, in lead.

4242. In this specification you say, "Clean down and paint two coats of zinc white in oil paint." So that in this case, at any rate, two coats of zinc white will be sufficient for the purpose?—Yes, with pigments in them. It is never meant to read that way.

4243. But that is what you tendered to the person you were specifying for, was it not?—Yes.

4244. Did you write something else than what you meant?—It was understood by myself and Mr. —

4245. Never mind what was understood. This written record is what you specified?—Yes.

4246. The specification says, "Cleaning down and painting two coats of zinc white in oil paint the whole of the exterior walls," excluding chimneys and parapets. Do you consider that would be sufficient for turning out decent work on the place?—Yes, with pigments.

4247. If you did think that was sufficient, what difference would the pigments make;—when you answered my question about the coat of lime and the three coats of zinc oxide on a wall that had not been painted before, did you include pigments in those three coats of zinc oxide?—Yes. I think I said—

4248. Did you, or did you not, include pigments in those three coats of zinc oxide?—Well, I meant pigments; I do not know whether I included them.

4249. But I want to get the meaning of the answer you gave me before. You remember saying, do you not, that if you were painting a wall which had not been painted before, and were going to do it with zinc oxide, you would first put on a coating of lime and then three coats of zinc oxide?—Yes.

4250. When you said you would put on three coats of zinc oxide, did you mean to include pigments in that?—Yes.

4251. Then in the case of a wall not painted before, you would use with pigments three coats of zinc oxide?—Yes.

4252. And you would prepare that with one coat of lime?—Yes.

4253. Here, giving the pigments in, you specify two coats of zinc oxide?—Yes.

4254. Do you consider those two coats, with pigments, would be sufficient to make a good job of that wall you were doing?—Yes.

4255. So that you regard the paint which was on the wall, which had been rubbed down with sand-paper, as leaving on the wall itself the equivalent of one coat of zinc oxide with pigments, and one coat of lime?—That wall had

been painted before. The body is on it, and it is a different thing altogether from a new wall.

4256. I put this position to you, following what you have said, that you regarded what was left on the wall after being rubbed down with sand-paper, as equivalent to one coat of lime and one coat of zinc oxide, with pigments?—I do not quite understand you.

4257. It is quite a simple proposition I am putting to you. You say if you were treating a wall that had not been painted before, you would put one coat of lime on it, and three coats of zinc oxide, with pigments. Is that correct?—Yes.

4258. Here you only specify two coats of zinc oxide, with pigments, and that is all?—Yes.

4259. So what is on the wall you would regard as equivalent to one coat of lime and one coat of zinc oxide?—No, I would not.

4260. Then you were doing a job you did not consider to be a satisfactory job?—I do not get you at all.

4261. You say that one coat of lime and three coats of zinc oxide are the requirements for the proper painting of a wall which has not been painted before?—Yes.

4262. And you only specify two coats of zinc oxide paint for it. Does not that mean you regard what is on the wall as equivalent to one coat of zinc oxide and one coat of lime?—I understand you now.

4263. Do you agree with that?—Yes.

4264. So what was left on the wall, after having been rubbed down and sand-papered, was the equivalent of one coat of lime and one coat of zinc oxide?—Yes.

4265. Do you know what was on the wall before?—I am not a chemist, but I can take it that it was lead which was on the wall before.

4266. Do you know how long it had been left on?—No.

4267. Was it about twenty years?—No, it was not.

4268. Was it ten years?—I could not say exactly.

4269. It may have been ten years, from the appearance of it?—It may have been.

4270. So what was left of the lead film on the wall which had been there possibly ten years, and which had been rubbed down by you with sand-paper, was the equivalent of one coat of zinc and one coat of lime?—Yes.

4271. You say, "All woodwork, including doors, windows, and underneath verandahs to receive two coats of zinc and oil paints?"—Yes.

4272. You do not specify cleaning down, do you? It says, "Clean down and paint two coats of white zinc and oil paint, the whole of the exterior walls" that is including chimneys and parapets. Then you go on and say, "All woodwork, including doors, windows, and underneath verandahs, to receive two coats of zinc and oil paint." There is no cleaning down described there, is there?—No.

4273. What you do in that case is simply to put on the zinc oxide on the surface as it then exists?—Oh, no. That is a misunderstanding. I have left out the cleaning down of the woodwork in that.

4274. Is that the way you prepare your specifications as a rule?—I am not too good at preparing specifications I will admit. I am not a scholar.

4275. You mean as a rule it would be understood on a specification of this sort that it would be done? We may take it it would be cleaned down?—Yes.

4276. What would that consist of?—Dusting and sand-papering and burning-off if required.

4277. On that particular job did you do any burning-off?—No. I did not have the lamp on it at all. I may say, before you go any further, that job has not been started.

4278. Have the specifications been accepted yet?—No.

4279. When you produced them this morning, did you not do so as specifications which had been provided by you and had been accepted?—You never asked me for any accepted. You asked me to produce specifications.

4280. Have either of these been accepted?—No, neither of them.

4281. How long is it since you supplied them?—One was in March and the other in June.

4282. May we take it that the one in March which you specified has been turned down?—Yes.

4283. And have you still hopes about the one dated 30th June?—Yes, I have.

4284. It is not so remote in point of time, but still it has not been done?—No.

4285. DEPUTY-PRESIDENT: What about Mr. Perritt's work—has that been done?—No.

4286. DEPUTY-PRESIDENT: The witness seemed to speak as if he had carried the work through on Mr. Perritt's house.

4287. Mr. MANNING: That is what I understood. The specification for Mr. Perritt's house is the one of 30th June—the Macquarie-street place.

4288. Whether you have done it or not, I want to get this from you as expert evidence. I was asking you about the woodwork and the preparing. Would you use the lamp on that woodwork?—Yes, if I thought it would be required.

4289. But you have seen it and made a minute examination of the place, have you not?—It is only on the doors and windows the lamp would be used.

4290. Would you use it on these?—Yes.

4291. What other woodwork is there besides this?—The underneath portion of the balcony floors, facias, and plates.

4292. The windows and doors would be a tenth of the area you would have to paint?—Yes, I suppose they would be.

4293. So you would paint the remaining nine-tenths without burning-off?—Yes.

4294. Would you do any sand-papering also?—Yes.

4295. Just lightly?—No; I would take all the nibbs off and the roughness off the wood.

4296. And what remained of the paint underneath that you would leave?—Yes.

4297. I suppose you would rub off about half the paint that is on the woodwork?—I do not say you would rub off half the paint with the sand-paper.

4298. Would the work you specify in this specification of Mr. Perritt's turn out a decent job, in your opinion?—Yes.

4299. You say that all woodwork, including doors, &c., shall receive two coats of zinc and oil paint, so you would regard what was left after the rubbing down you have mentioned as the equivalent of two coats of paints and pigments?—Yes.

4300. I suppose the paint on it may have been there ten years?—It may have been.

4301. And it was lead-paint?—As far as I know, but I could not say for certain.

4302. As to the McGrath specification you did not get, dated 5th March, you say, "I have much pleasure in quoting you my price of £237 for the

execution and completion of the following work:—Painting two coats of external walls, including backs of parapets and chimneys, the w.cs. having been previously painted.” I take it the two coats you have mentioned would be put on all external walls, including backs of parapets and chimneys, and that they had not been previously painted?—Oh, no.

4303. It was not only the w.cs. which had been previously painted?—No.

4304. The specification says that all doors, windows, and facias, &c., should receive two coats of paint, and that the doors, &c., where burning-off was required would be painted in three coats?—Yes.

4305. That is rather extraordinary, is it not? Why do you specify three coats of paint here where there was burning-off and only two in the Macquarie-street job?—I do not think I specified it in the Macquarie-street job. I said I would have burnt the doors off if it had been necessary.

4306. Did you not tell me a minute ago that in the Macquarie-street job you would burn off the doors and windows?—Yes.

4307. The specification is to put two coats of zinc oxide on that?—Yes.

4308. Do you say now there is any difference in the two jobs I put to you—the Macquarie-street job and this one?—I suppose there is a difference.

4309. Why did you specify three coats in the case of McGrath and only two coats in the case of Mr. Perritt, for the same work?—I think when it is burned-off it requires three coats, because there is absolutely no paint on the wood after burning-off.

4310. Then you have not specified enough for Mr. Perritt’s job?—No, but it would have got it just the same.

4311. You would have put it on?—Yes.

4312. I am only considering the fact if it is burnt off you would put three coats of zinc oxide on Mr. Perritt’s job?—Yes.

4313. Why do you distinguish between the surface which has been burnt off and the surface which has not been painted at all—or do you distinguish between them?—There is no difference.

4314. Why did you tell me the surface of woodwork which had never been painted at all requires, in your opinion, four coats of zinc oxide?—I should think there is more suction in a thing that has never had any oil or lead put into it than where it has been and has been burnt off.

4315. In other words, you think there is a difference?—Yes, there is a slight difference.

4316. You think the pores of the woodwork have been filled up by the earlier coat?—Yes.

4317. At any rate, you think three coats would be required on a surface which has been burned off and four on a surface which has never been painted at all?—Yes, in white work.

4318. What distinction do you draw between white work and work that is not white work, as regards the amount of zinc oxide required?—In the white work the zinc oxide has not got the body the lead has got, and therefore I think it requires more; but with pigments you seem to be able to get it on better, using the same ground colours one after the other.

4319. But as far as white is concerned, you would give lead the preference by a long way?—As far as body is concerned, yes.

4320. It would follow from that that the weather-resisting qualities of white lead would be infinitely superior to those of zinc oxide?—I could not say, because I have had only twelve months’ experience with zinc oxide, and I do not think it is sufficient to satisfy me as to woodwork. I said that earlier.

4321. Yes, I believe you did. You have stated now that in white work the zinc oxide would require four coats, because without the pigments it is difficult to get a proper covering surface?—Yes.

4322. There is no difficulty such as that in the case of white-lead, is there?—I have not found it so.

4323. The less the tendency to cover the surface the less its effect as a weather-resisting agent, is it not?—I cannot say that. I do not—

4324. But does it not stand to reason? If you put a coat of paint on this screen, here, and patches of the screen show through the paint, would you not say the paint would not keep the weather off the bits of the screen exposed?—As far as weather goes I think it has a lot to do with the light, and not the lead-zinc, or anything.

4325. I am asking you to compare work done by oxide paints and lead paints, and you tell me with regard to the zinc oxide paints you would not regard anything less than four coats as sufficient on a surface of wood-work which has not previously been painted, the reason being that the oxide does not take to the woodwork in the same way as the lead paint does. Is that so?—As far as body goes.

4326. Do you draw any distinction as far as body is concerned; either the wood does not or does take it;—what do you mean by body?—No density, no colouring power.

4327. Is not the covering tendency of paint an indication of its weather-resisting efficiency as paint?—I could not say that.

4328. Can you not tell by looking at it; do you know where zinc oxides have been used;—do you know Paris House, in Phillip-street?—No, I do not.

4329. You do not know the appearance of Paris House before it was scraped off?—No. I would have liked to see it.

4330. If you look at it now, perhaps, you will see what I mean; there are sufficient indications of it at the present time, I understand. I was asking you the difference between the white paints and the others, as far as zinc oxide is concerned, and I understood you to say in the coloured paints the pigments make a difference?—Yes, as far as body is concerned.

4331. So, if you were using zinc oxide in colours, how many coats do you think would be sufficient for an exterior surface?—Two coats.

4332. What colours would you say two coats would be sufficient for?—Stone colours, dark greys—

4333. That is, on a surface which has never been painted before?—On a surface that has been painted, for two coats of zinc oxide.

4334. But I am asking you about exterior surfaces which have not been painted before. How many coats in zinc oxide colours would be sufficient?—Three, on top of lime.

4335. So you do not distinguish between the exterior surface in whites and colours. Have you not said the exterior surface in white would require three coats?—With pigments, I said. With colours it would require an extra coat.

4336. With pigments it would require one coat of lime and three other coats, with pigments?—Yes.

4337. Does the same thing apply to woodwork?—Yes.

4338. Would you make that distinction as regards interior woodwork?—No, I would not make any distinction as regards that.

4339. If you were treating new work, inside woodwork which had not been painted before, you would give that how many coats of zinc oxide paints with pigments?—Three.

4340. And with whites?—Four coats.

4341. That is, inside woodwork?—Yes.

4342. Why is it you would give it so many coats, and for what purpose is it?—You mean the oxide? I think new work requires it.

4343. Do you mean for appearance?—Yes, for appearance sake.

4344. For appearance only?—Yes.

4345. I take it there would be no difference according to you, between the weather-resisting qualities of paint with zinc oxide between three coats and four coats?—I do not think so.

4346. It is only the matter of appearance?—Yes.

(Witness retired.)

WALTER ROBERT GRAHAM, recalled, further examined by BOARD:—

4347. DEPUTY-PRESIDENT: You are here to give us some information which was asked of you on the occasion when you last attended?—Yes. I have particulars of twenty-two cases which have occurred during about the last twelve months, but perhaps three or four are a little later than that.

4348. Can you give the Board the information as you have it there?—These are merely extracts.

The first case is that of William Clayton, employed by Bakewell's Pottery. He came to see me on the 7th June, 1921. He was suffering from an attack of lead-poisoning, and I advised him that he should seek some other form of employment wherein no lead is used. I reported he should be able to resume such work in about two weeks.

4349. Did you see him again?—No, he did not return.

(2) This case was Fred J. Jones. He was employed by Bergers, Limited, and saw me on the 4th of February, 1921. This was a doubtful case. He complained of weakness, giddiness, restlessness, and sleeplessness; of abdominal pains and weakness of the muscles. He had no lead line in the gums and no definite symptoms of lead-poisoning, excepting the muscular weakness and abdominal pains. These could be accounted for by his general nervous and debilitated condition. As I said, it was a doubtful case. I found no lead line, but the abdominal pains and muscular weakness suggested possibly he may have been exposed to some lead and that it set up symptoms of that kind without the definite lead line. That line is nearly always associated with lead-poisoning. I advised him to keep away from work connected with lead.

4350. How long was he ill?—I did not see him again.

4351. Did you prognosticate anything in his case?—I advised him not to go near lead.

4352. You did not say he would be fit for work in any particular time?—No. He was a nervous, restless chap, and I advised Berger's, Limited, to try and get him some light work. I have not this recorded, but I fancy he was sent away to the country. He was a nervous, neurasthenic man.

(3) F. H. Henberg, aged 20, was a paster employed at Accumulators, Limited, at Glebe. He was off work for three weeks, and resumed on 5th of February last. He returned to his work. Accumulators, Limited, are making accumulators for electrical batteries.

(4) Joseph Brown, aged 20, was employed by Accumulators, Limited. He was off work six weeks, from 31st January this year, when he resumed at the same work. He was also a paster. I have five cases, all out of that one room.

(5) H. S. Walker was a painter, and he had repeated attacks of lead-poisoning. I have not got his age. I advised this man to seek some other employment, and also instructed him in regard to the care he would require to take if he remained a painter.

4353. Did he have the blue line?—Yes, very definitely.

(6) A. Green was employed by Bakewell's Pottery Works. He said he had been off work with abdominal pains and weakness. His condition was consistent with lead-poisoning, of which he showed definite

symptoms—lead-line, abdominal pains and weakness in muscles. I advised he should not return to his present work, but to go to some other work, for which he would be fit in about a week.

4354. What was the date of his case?—I have not the date here, but it would be early in this year or late last year. It would be prior to October, 1920, which is the date of the next case, as they are put in order.

(7) A. Conley, aged 25, was employed by Simmons, Limited, printers. In October last year he lost three weeks' work and was advised not to return to any avocation in which lead was used. He became a tram-driver and has lost no time since.

4355. He was employed as a linotype operator, was he?—Yes, a compositor.

(8) Clarence O'Neill, aged 20, worked with Accumulators, Limited, a paster. He was off four weeks from 20th December last year.

(9) William Hynes was 19 years of age, a paster with Accumulators, Limited. He was off work for three weeks from 24th December last year. He did not go back there, but found work with someone else.

(10) W. A. Sutton, 23 years, was a paster with Accumulators, Limited, and was off work eight weeks from 5th October, 1920.

(11) C. S. Mowbray was a boat-builder employed by Mort's Dock, and suffered from definite lead symptoms, the cause of which was unknown. This man was not working amongst lead as far as could be ascertained. He was off work for about four months from July, 1920.

(12) R. McDonald was a labourer employed by Perdriau's, Limited. He was off work seven weeks prior to the 4th May, 1920, when he returned to work. I advised this man that he was susceptible to lead, and that he should seek work elsewhere, so that he would not be exposed to lead fumes. He got the trouble from the vulcanising work.

4356. Was he a vulcaniser?—No, a labourer, but was working near lead, and was very susceptible to the fumes.

(13) E. McCormick, aged 35, was a wharf foreman employed by Dalgety & Co. He had definite lead-poison symptoms. He was ill from 12th February, 1920, to 6th April, 1920, and then went back to his work, and has had no trouble since. The cause of his lead-poisoning was not discovered. I have a note here that had probably some domestic contamination of water or food, at his home.

(14) A. J. Hanslow, aged 50, was a linotype-worker at Leichhardt. I did not see this man, but he died, and I went into the whole of the papers of his case, because there was some litigation in regard to it. He suffered from plumbism, and was treated by Dr. Lipscomb eight years ago. He became ill and died of arterio-sclerosis and myocardial degeneration in October, 1920. The interesting point about this case is that during the previous five years, 1915 to 1920, he had been attended on several occasions by Dr. Northcott, who succeeded Dr. Lipscomb, but during that time Dr. Northcott had never seen any symptoms of lead-poisoning. That is, originally he had lead-poisoning, and it set up secondary changes in his condition from which he subsequently died.

(15) Oliver Gray was employed by the Dairy Farmers' Co-operative Milk Company, and I saw him on 13th August, 1920. It was a definite case of lead-poisoning with lead-line and colic. He was a repairer of milk-cans and was susceptible to lead. I advised him to obtain some other form of work. I understand he was off work about three weeks, and did not return to his employment.

(16) E. Miner, aged 56, was a painter and was off work with a second attack of lead-poisoning for two weeks from 7th May, 1920. I do not know where he was employed, but he was insured through the Mercantile Mutual Insurance Company. He had all the classic symptoms of

lead-poisoning, and this was his second attack—lead-colic, abdominal pains, and muscular weakness. He was off work for two weeks, and I understand returned to the same work. Probably he was employed by Howie, Moffatt's, or some of the big builders covered by the Mercantile Company.

(17) A. Austin was a painter, and suffered from lead-poisoning in a severe form. He had lead-palsy, and would not be fit for work for some time. That was on the 20th January, 1920. I advised the insurance company to get into touch with his employers, and strongly advised the man not to again take on work where he would handle lead, as he was very susceptible. He had suffered from previous attacks, and had now developed a form of paralysis in the arms.

(18) J. Matthews worked with the Riverstone Meat Company as a press hand. This man had apparently nothing to do with lead, but was working near where lead was being melted, and the fumes infected him. I advised him as being very susceptible to lead. He was off eight weeks from 4th January, 1918. I advised him to work in some part of the factory where he would not get any of the fumes.

(19) William Cooper I have here as a painter, but with a query. I saw him on the 16th May, 1918, and he had definite symptoms of lead-poisoning and lead-colic. I advised that he would be able to resume work on the 20th of that month. It may have been a week before I saw him.

(20) Robert McDonald, aged 40, was a labourer employed by Per-driau's, Limited, and assisted at the vulcanising. He was off four weeks and four days from the 17th May, 1918.

(21) R. Hagon I have as a painter, but that also is queried. I saw him on the 17th December, 1918. He was suffering from plumbism, and was able to resume work, but I advised he should stay away from lead in a heated or dusty condition. He had been off work two or three weeks.

(22) There was another man, who died in the Prince Alfred Hospital, Henry Gilberd, a painter, aged 55. He died of cardiac failure and uræmia (*arterio-sclerosis*) and Bright's Disease. He had been treated at the Prince Alfred Hospital on several occasions for lead-poisoning and Bright's Disease. The first record as to his case was in the Royal Prince Alfred Hospital, 24th January, 1917, for a week; again in the same hospital on the 27th April, 1918, for ten days; again in the same hospital on 11th April, 1919, for five days. He went out against medical advice and died on 10th May, 1919, according to Dr. Bell's certificate of saturnine encephalopathy, which means a general poisoning involving the brain.

From those cases I have made a short *resumé* of nine conclusions, which I will read to the Board if it would like to hear them.

4357. DEPUTY-PRESIDENT: We shall be glad to have them.

4358. WITNESS: They are as follows:—

(1) Lead compounds are poisonous to men.

(2) Acute symptoms may occur rapidly from such poisoning, especially if salts of lead be taken into the stomach, or if large quantities of lead in a vaporous or finely-powdered form are inhaled into the lungs.

(3) Chronic lead-poisoning is much more common, and may result from the handling of metallic lead or any of its compounds.

(4) Some persons are much more susceptible to the action of lead than others; and these, when warned of this idiosyncrasy should not follow an occupation involving the handling of lead or its compounds.

(5) Lead compounds in a vaporous condition or in the form of dust inhaled into the lungs, produce the most poisonous results. I say "vaporous" because the word "fume" does not carry the exact meaning. A fume may be a heavily-leaded atmosphere composed of minute particles. A vapour may have those particles of lead more finely divided, but still very potent in producing poisonous effects the same as fumes.

4359. DEPUTY-PRESIDENT: The vapour would be a general emanation?—Yes. I particularly used that word, because you have it coming from vulcanising, or where galvanising is being done, and vapours are arising from a moulted pot, or even from the burning-off of doors by means of the lamps which painters use, because there is a pretty high temperature required to get the old lead-paint off the walls they are burning-off. Some of that lead is conceivably driven off into the atmosphere in vaporous form.

(6) Lead ingested into the alimentary canal in small quantities may set up the symptoms of chronic lead-poisoning.

(7) The entrance of lead or its compounds through the skin only as a cause of lead-poisoning is rare, and only those people who show a peculiar susceptibility to the poison are affected in this way.

(8) Sufferers from lead-poisoning get well if removed to an environment where no lead may affect them, but people who have been long exposed to the action of the poison suffer permanent changes in the body tissues as the result of the action of the poison, and this poisoning shortens the life of the sufferer.

(9) By cleanliness and the application of correct methods in the manufacture and use of lead or its compounds, the danger of poisoning may be reduced to small proportions.

In regard to the Accumulators, Limited, cases, I had five cases from there and was sent out by the people concerned in the insurance to make a report upon the claim. This I did, and since then there has not been a single case recorded. The people acted upon my report, and there has been no case of lead-poisoning since.

4360. On what date did you report?—The report was made on 18th January of this year. The five cases I had seen were all within two or three months of that time, and there has not been a single case since, except of two boys who were in the pasting room; and they were back in a week, and there has been no case since. The report I made is as follows, addressed to the Manufacturers' Mutual Insurance Company, Limited:—

I have to-day inspected the works and the various processes of Accumulators', Limited, at Glebe, and am of the opinion that there is a possibility of lead-poisoning occurring in any of the employees, but that, with care, the risk will be very small for most of them, but under the present conditions of work in the "paste-room" the risk is great, the reason being that there is a lot of lead dust (litharge) lying about in a dry powder form on the floor and elsewhere, and it is the absorption of the dry dust in this room that is causing the poisoning symptoms exhibited by the boys at work there. There is also a dry grinding mill in this room which is a potent source of trouble, and should be removed.

I have explained the necessary alterations to the manager, and if these are rectified the trouble should be reduced to a minimum.

The instructions given to him were that the grinding mill was to be removed from the paste-room and worked by power outside of the paste-house. The floor was to be cleaned thoroughly daily, and no dry dust was to be allowed to remain and the floor was to be kept damp. The litharge—dry powder—only to be handled, until moistened, by an employee wearing

an efficient respirator. There have been no cases since, except the two boys I have mentioned.

4361. As regards the painters you have had through your hands and mentioned in the list, have you any reflections to make upon them as a group?—No.

4362. First, there is H. F. Walker, who suffered repeated attacks of lead-poisoning, and was advised to seek other employment?—Yes, that was (5) on my list.

4363. Then there is (16) E. Miner, a second attack; (17) A. Austin, a very bad case indeed, which had reached lead palsy; (19) William Cooper, who may or may not have been a painter, and who was suffering from a mild attack, apparently; then (21) R. Hagon, who may or may not have been a painter—

4364. Mr. CONNINGTON: Mr. O'Brien tells me he is a painter, and that the name is Fegan.

4365. WITNESS: This man's name is R. Hagon and is a different case.

4366. DEPUTY-PRESIDENT: He may or may not have been a painter, and was slightly affected. There is also Gilberd; who died from the disease?—Yes.

4367. So in the case of two of the six painters in the list there is a doubt, and they were light cases. In the other four cases there can be no doubt that the condition of the patient was at least bad?—Yes.

4368. Would this incidence of the disease in the case of painters be regarded by you as extraordinarily heavy;—you have already told us you regarded the incidence of the disease amongst the workers in the storage batteries as being unduly heavy and as calling for special consideration on the part of the company, and by you, as their adviser?—Yes, that is so.

4369. Do you regard the frequency of the occurrence of the disease amongst painters as remarkable?—Oh, no.

4370. Mr. MANNING: Perhaps you do not even regard it as frequent?—I think there are five or six cases (two of them doubtful) out of the twenty-two cases on my list. There are four definite cases of lead-poisoning out of the twenty-two.

4371. DEPUTY-PRESIDENT: That is a heavy proportion. If there are six it is extremely heavy?—From this lot, yes.

4372. It is about 30 per cent.?—There is a doubt also about two of them.

4373. Of course, that alters the proportion to some extent?—Yes.

4374. Mr. MANNING: The only reason why I suggested that perhaps the doctor did not regard it as frequent was because the question was asked by you regarding the frequency of the occurrence of the disease amongst painters being extraordinary, and, as a matter of fact, the witness did not assent to it.

4375. DEPUTY-PRESIDENT: I was using the statistical meaning.

4376. Mr. MANNING: I only wanted to make it clear that the doctor might or might not have assented to the statement about the frequency, but apparently the net result is that out of six affected two cases are doubtful, and the other four?—The other four all had it.

4377. DEPUTY-PRESIDENT: They were all bad cases.

4378. Mr. CONNINGTON: I do not wish to ask the doctor any questions. The figures are sufficient; there are four bad cases. There are two cases of lead-poisoning which the doctor is not sure about, out of twenty-two cases. He has said how lead-poisoning is caused, and that the tendency to take the poison is greater in some people than in others; and this is all borne out in works I have before me, and to which I will refer when I am addressing the Board.

4379. DEPUTY-PRESIDENT: Here is the opportunity to provide the hook to which to attach a discussion of your doctrine on the matter.

4380. Mr. CONNINGTON: It is borne out by the works before me, and even by a medical work put in my possession this morning.

4381. Have you the addresses of those two doubtful cases?—I think I can get them through the Insurance Company concerned. I can certainly get the employers, who no doubt will have the addresses.

4382. Mr. MANNING: Take this (5), H. S. Walker, he was the first person whom you mentioned as a painter?—Yes.

4383. Would you tell me what records you had of him—what information you had before you;—you saw the man, of course?—Yes. He was sent to me with a statement of claim filed against his employer, insured with the Mercantile Insurance Company, saying he was suffering from plumbism. That is, a statement of claim by the employer to the Insurance Company. I saw these men by reason of the fact that they were applying for compensation because of inability to work, lead-poisoning being an industrial disease under the schedule.

4384. Did you have any doctor's certificate in his record?—Sometimes a man has a certificate, but mostly not. I am guided by my own observation.

4385. Did Walker have one?—I do not think so, but he had definite symptoms. When a man has lead-poisoning and shows the peculiar anæmic conditions, you can always tell.

4386. He had repeated attacks, and was advised to seek other employment?—My note says he had repeated attacks, and was advised to take care of himself or seek other employment. I have not noted his symptoms, but I know the definite symptoms.

4387. Do you remember what they were in this case?—The lead-line, muscular weakness and colic. Nearly always the initial symptom of a case of lead-poisoning—although he may have had previous attacks—is acute colicky pains in his stomach. Although he may, by being treated, get rid of those pains and be all right in five or six days and go back to his work, he has still lead in his system which has not been eliminated; and by becoming careless in his habits, by not looking after his bowels or by having more lead ingested in the course of his work, he may have a second, a third, or a fourth attack. But that is the primary symptom. By long-continued absorption he develops changes in his tissues—gradually deterioration results, and ultimately the man will die.

4388. The first symptom you mention is lead-colic?—Yes, practically every one of these men I see when they come to me complain of lead-colic—every one of them.

4389. You say the first symptom in these men was that of colic?—Yes; but it may have been present five or six days before I had seen them.

4390. Was that the case in this man Walker?—It was the same symptom.

4391. Did you notice any other symptom?—There was the lead line. Those are the two definite symptoms.

4392. You did not observe any other symptoms?—No. There would be anæmia, of course, because I took the trouble to advise this man to seek some other form of employment. Besides repeated attacks of lead colic and the lead line in his gums, he would certainly have anæmia, which means the process of deterioration —

4393. Have you a note of the symptoms of each of those people you saw;—it is of some importance?—No, I have not a note of it, but I am giving you the symptoms from my memory.

4394. Would you be prepared to say he had anæmia—this man Walker?—Yes, I would be prepared to say he would be anæmic.

4395. What are the indications?—Repeated attacks would produce certain indications of anæmia; and the fact I advised him to seek some other

form of employment means I would have a definite impression in my mind that man had a good deal of lead in his system.

4396. You formed some opinion about the incidence of anæmia because of the fact he had frequent attacks, and only because of that?—Yes, that would be sufficient.

4397. Of course, for that opinion you had to rely upon what he told you?—Yes. Of course, in the statement of claim there may have been information given to the insurance company that he had been laid off before through some similar condition.

4398. Anyway, it was information you obtained either from him or from someone else?—Yes.

4399. DEPUTY-PRESIDENT: I am afraid the witness has not followed you exactly enough, Mr. Manning. I think he said this man bore evidence of lead-palsy. That is something the witness did not indicate, except by his appearance.

4400. WITNESS: I used the words "lead-palsy," but it is anæmia.

4401. Mr. MANNING: Were there indications of that in the man himself?—Yes; and the fact that I advised some other form of employment would definitely show it.

4402. Is it correct that the reason for coming to the conclusion that he was suffering from anæmia was that he or someone else told you he suffered from repeated attacks?—Partly that, and partly because I would not advise other employment on one attack of lead-colic.

4403. You advised it on his having told you he had repeated attacks?—Yes. I never saw a case of lead-poisoning where a man had repeated attacks, where he had not become anæmic, as a result of poisoning. They always become pallid and anæmic.

4404. Your opinion about his having anæmia and being anæmic was based on the fact that he or someone else had informed you he had suffered from repeated attacks?—Yes.

4405. And that only?—That and his appearance.

4406. What was there about his appearance that indicated that to you?—I cannot visualise this man just now, but his appearance would be undoubtedly one of pallor.

4407. But you have no independent recollection?—No.

4408. You imagine that probably was the case?—Yes. I see anything between fifty and sixty claims in a day, and cannot remember every one of them.

4409. But I understand you to say the circumstance to which you attach the greatest importance is repeated attacks, as indicating anæmia?—Yes.

4410. DEPUTY-PRESIDENT: When you speak of continued attacks, you suggest there must be a clinical history somewhere?—Yes.

4411. Have you preserved his clinical history?—No. I did not get that. When a man is incapacitated for work by a schedule disease or accident he comes to me, and I report on the probability of his being able to resume work.

4412. You have to take the clinical history from his own mouth?—That is so.

4413. Mr. MANNING: There are one or two other matters on that question;—the repeated attacks he told you about were repeated attacks of colic?—Yes.

4414. And the subjective indication of the colic would be the pains in the stomach?—Yes, always obstinate constipation, associated with pains in the stomach.

4415. Then there was the lead-line in his case?—Yes.

4416. You have had considerable experience of people who have been suffering from the effects of lead, one way and another?—Yes.

4417. Have you ever applied scientific treatment to them;—have you ever applied your mind to the solution of the question whether the lead-line becomes apparent in the gums before the actual lead has got into the tissues and set up a condition of poisoning?—That opens up a wide question. It opens up the chemistry that occurs between the chemicals of the blood and the lead. The conception of lead-poisoning as it affects people is that lead in a metallic form or in the form of some of its compounds is ingested into the system in one of the ways indicated, and through chemical action between the fluids of the blood and the lead-poison present —

4418. The lead poison present?—The lead as a poison—the lead compound which is present. The only lead which is not a poison is metallic lead.

4419. That is what I wanted to distinguish?—Metallic lead is not poisonous. It is inert, but it may enter the system as metallic lead, and chemical changes immediately occur, and the inert metallic lead immediately becomes poison, the chemical compound having been formed inside the body, and not outside as is usual.

4420. Is this correct: The scientific knowledge of the subject differentiates between the condition of absorption which may happen. Lead may pass through the body quite harmlessly?—Yes.

4421. And yet in lead absorption the line may appear?—Yes. The lead-line does not mean anything very much, except that it demonstrates the presence of the lead in the body.

4422. That lead may be injurious, or may not be?—That may be so. You may get people with the lead-line who have not had colic or any symptoms at all. I suppose every lead miner underground would show a lead-line, and only a proportion will show symptoms of lead-colic. It merely means that some metallic lead is being deposited in the body in an inert form after the fluids of the body have dealt with it and that lead, passed out of the body, is no longer capable of doing damage; and the lead deposited in the tissues is rendered inert by the action between the fluids of the body and the compound which is present.

4423. The more serious condition of poisoning is that where the lead has got into the tissues?—Yes. The lead line in the gums is only an indication that lead has been deposited in the gums and other tissues.

4424. Possibly it is injurious, and possibly it is not injurious?—Yes.

4425. But you mentioned muscular weakness in connection with Walker?—I have not any record of that. Possibly it was not present.

4426. Was that one of the symptoms?—No, repeated attacks of lead colic, the lead line and the palsy.

4427. Have you a record of anything else?—No.

4428. I just want to get this part of the medical knowledge of the subject. I want to get the different ailments of which colic is a symptom for the purpose of collecting the symptoms on the subject. Acute indigestion, appendicitis, or kindred or other ailments of that kind would produce that feeling?—You can get colic from other causes, but the lead colic is typical of the thing. It nearly always affects the middle part of the stomach, the abdominal cavity, and it always is associated with obstinate constipation to such an extent that we have to sometimes use croton oil to get the bowels to move. You can invariably demonstrate the presence of lead-line.

4429. I am not asking you particularly as to this case. I want to get it for this, as well as other cases. The fact that a man suffers from colic

may mean he suffers from it from a variety of different reasons?—That is so.

4430. And if he is his own diagnostician?—He could not distinguish between lead-colic and colic produced by anything else—that is, unless he had had a previous attack of it, and then he would know.

4431. If he had one attack of it, and had been informed on the subject, you mean he would then know?—Yes.

4432. Was there any blood test made by you?—No, I do not do anything in the form of treatment.

4433. I take it you do not examine the urine?—No, very seldom.

4434. The next person is E. Miner (16). Have you any record of the symptoms he showed?—No. He is a man aged 56, a painter. The definite symptom most apparent in his case would be the lead-line in the gums. His history shows he had a previous attack.

4435. Mr. MANNING: Do you remember what the previous attack was that he told you about?—No, there is no record. He was off once before with an attack of lead-colic; that is the only record I have.

4436. Did he complain of lead-colic when he came to see you?—No; he was convalescent then; the actual colic had passed.

4437. As far as his history was concerned, that was the history he gave?—Yes, the history of lead-colic. He was only off work for two weeks. When he went back to work he would still show the lead-line, and he would still show the characteristic pallor.

4438. Did he have the lead-line?—Yes.

4439. DEPUTY-PRESIDENT: And, having suffered two attacks, would he be more prone to a third attack than another person would be?—Unless he took care. A man has to avoid further absorption of lead, having had one attack, or any attack. If he takes care, unless he shows any special susceptibility, he can, I think, go to his work again.

4440. Mr. MANNING: I do not suppose he produced any certificate?—No, I do not think so; just the notification of claim.

4441. With regard to Austin, No. 17, what symptoms did he have?—The man had lead-palsy. When a man has been suffering from lead-poisoning to the extent that it sets up paralytic changes, *i.e.*, that the effect of the poison has been so great that it caused deterioration in his nerve tissues, then it is the beginning of the end. He should undoubtedly seek some other work, and possibly it would be many months after being removed from the action of lead before he will regain, if ever, the use of those muscles affected.

4442. As far as the palsy is concerned, the indication you get of that is an external indication?—The first indication is usually the wrist dropping. That is due to paralysis of the nerve at the back of the forearm, supplying the extensor muscles.

4443. If you know that the person displaying that symptom has suffered from lead in the past, then you associate the two things together?—Always.

4444. If it were not known that the patient had suffered from lead in the past you would necessarily associate that symptom with lead-poisoning?—No. It is an extremely rare thing to get the wrist drop in both arms from any other cause except lead.

4445. What are the other causes of it?—The central nerve lesions—that is, some damage to the nerve centre in the brain which supplies the nerve to that part; but usually it is unilateral, applied to one arm. I am speaking particularly of the wrist drop.

4446. Did he display any other symptom?—That was the outstanding symptom, and having that palsy he must necessarily have had the other symptoms. He may not have had any recent lead-colic. He may have been

suffering from lead poisoning for years, and gradually developed the palsy. A man may be poisoned with lead for years and show no symptoms.

4446A. I will not bother about Cooper?—I am not sure whether he or Hagon were painters or not.

4447. DEPUTY-PRESIDENT: I observe, by the way, that Cooper's date is the 16th May, 1918?—Yes.

4448. Over what period of time have these cases been collected?—All these cases, up to No. 17, are within the last twelve months.

4449. And from 17 onwards there is no limit of time?—From 18 to 20 there are five cases that I picked up going through some of the records.

4450. But there is no limit of time in respect of the cases after No. 17?—No. The oldest history we have of anything there is of Gilberd. He was first in the Royal Prince Alfred Hospital in 1917. With regard to Hanslow, I did not see him, but he was stated by Dr. Lipscombe to have lead-poisoning to his personal knowledge about fourteen years ago. He was No. 14. He was a linotype-worker.

4451. Would there be a limit of time set to these cases by the Workmen's Compensation Act?—In the case of Gilberd, this man had only been working for the employer who paid the claim about a year prior to October, 1920, when he died. It was definitely shown that he had been working for several employers during the past years, and it was also known as far back as 1917 that he had lead-poisoning.

4452. But your records, I suppose, with respect to lead-poisoning and other industrial diseases, would have commenced after the passage of the Workmen's Compensation Act of 1916?—Yes, these particular things. My personal knowledge of lead and its poisons was gained when I was living in Broken Hill twenty odd years ago.

4453. Yes, you told us that. These records in your capacity as an adviser of insurance companies, would, so far as they concern industrial diseases, have commenced in 1916?—Yes.

4454. MR. MANNING: Gilberd is the next case, and he was a painter. Have you got his symptoms there?—I did not see Gilberd. He was dead; he died in May, 1919. The reason I came in contact with this case was that a claim was made for compensation for lead-poisoning as against one employer. I was asked to get what particulars I could of his previous illnesses, and these are what I obtained. He had been working for different men at different times.

4455. Then you really got his record from Dr. Bell?—I got his record from Dr. Clayton or Dr. Collins, of the Prince Alfred Hospital.

4456. I thought it was from Dr. Bell, of Waverley?—He went out from the hospital five days before he died, against the advice of the hospital authorities. Dr. Bell, of Waverley, saw him and filled in the death certificate. All this information regarding him was obtained from the Royal Prince Alfred Hospital.

4457. It comes to this, that four of these cases occurred between the 24th January, 1917, and the present time?—Yes.

4458. DEPUTY-PRESIDENT: No, the doctor makes this reservation, that he searched his records exhaustively over the period of a year last, but he was not able to search the earlier records as closely as the records of last year.

4459. WITNESS: That is so. I know I have other cases than those I have recorded here.

4460. MR. MANNING: You mean, there are other cases since 1917?—Yes.

4461. Can you turn those up?—No. I have been at it too hard now; I have been round to half a dozen insurance companies in Sydney to get these records.

4462. So long as we know the position that is all we want. I was struck by the date of Gilberd's case, and that is why I asked the question—

4463. DEPUTY-PRESIDENT: I think the doctor has given us a considerable amount of information, and it may not be fair to him to ask him to spend any more of his time.

4464. WITNESS: Some of my records have not been kept as fully as they should have been, and when I went to see the insurance offices they either could not, or they would not look up the records for me. I know I have not mentioned many of my other cases, but that is for the simple reason that I cannot tell you very much about them.

4465. Mr. MANNING: It comes to this, that you have searched your records back for how long?—For one year from this date, and in that one year from this date I got these seventeen cases.

4466. Do you mean one year from this actual date, or back from the beginning of 1920?—No. 1 is dated 7th June, 1921, and No. 17 is dated 20th January, 1920.

4467. What I wanted to get at was how far you actually went back?—To the 1st January, 1920.

4468. That would be, say, eighteen months?—Yes.

4469. And during those eighteen months there would be three cases attributable to that cause?—Yes.

4470. Gilberd goes back to 1917?—Yes, and the other two are prior to that.

4471. Mr. CONNINGTON: Gilberd died in 1919?—Yes, on the 10th May, 1919. I have information that Gilberd was treated for lead-poisoning, and nephritis (that is, from his last employ—I forget now the name of the employer) fifteen years ago; he knew he had lead-poisoning fifteen years ago.

4472. Mr. MANNING: As to those conclusions you gave us—I mean the inferences you have drawn—I suppose some of those are drawn from your experience of actual cases that came under your notice?—Yes.

4473. And others, from what you have learnt on the subject?—Well, it is difficult to separate those two things.

4474. The reason I ask that is this: what is No. 7?—The entrance of lead or its compounds through the skin only as a cause of lead-poisoning is rare. That is my opinion, and that is a very definite opinion.

4475. Sometimes the men get lead on their hands, and a suggestion has been made that it gets into the mouth?—With their food, yes.

4476. That would be covered by your case of ingestion through the alimentary canal?—Yes.

4477. I understand you wish to suggest another cause, namely, through the pores of the skin?—Yes.

4478. For that, I suppose, you would be relying on a text-book?—No. The text-books say that people get lead-poisoning through the pores of the skin. I do not believe it.

4479. DEPUTY-PRESIDENT: But you mention that as a possible means?—It is a possible cause, and it is described in all the text-books as a possible cause, and some of those text-books will quote cases of that, but only in cases of people who are very highly susceptible to lead, and have any amount of it about their skin all the time. I do not consider that is a probable cause. We must admit the possibility of it, but my experience is not so.

4480. Mr. MANNING: May I take it this way, that as far as becoming infected with lead-poisoning in that way is concerned, it is practically negligible?—Yes, that is my opinion.

4481. You think it does not exist at all?—Only in the case of those who are very highly susceptible to the action of lead.

4482. If it were possible at all, it would be only in those rare cases?—As an instance of what I mean, take the case of an ordinary plumber who is handling lead-metal pipes all day long. In the whole of my records I have not one plumber at all. He never gets it. In Broken Hill, in the old days when I was working up there, parties of six men used to constitute a shift, and a particular place in the mine was allocated to them, and they have in the mine there places that are called wet places and dry places; that is, the particular stope or the place they are working in may have no water in it, and in another place there may be water in it. If ever we found any one of that party of six suffering from lead-poisoning as the result of inhalation of dust from the dry place, we always took him out of that particular party of six and put him in another party of six and let him work in a wet place, and he would get rid of all his lead symptoms as far as inability for work was concerned. That shows that where they are handling these lead compounds all day long (principally sulphide in Broken Hill) they do not get symptoms of lead-poisoning, *i.e.*, lead-colic, sufficient to lay them up. If they go into a place where there is lead dust in the air as the result of the explosions going on there, they do get lead-poisoning, showing it is inhaled through the respiratory organs.

4483. With regard to these Accumulators' and Perdriau's cases, you attribute that, I suppose, to the inhalation?—Yes, through the respiratory organs. I think all lead-poisoning that occurs in painters must result, not from the painting of wet paint on to walls, but from the rubbing down of old paint on dry surfaces. There is the powder that is floating in the air as the result of the rubbing down of dry surfaces or possibly in the case of the blow lamp, where the lead is driven off at a high temperature and in a vaporous condition. In addition to that, the painter who is careless in regard to his hands, if he has his lunch with particles of wet paint adhering to his hands, he plasters his food with the paint off his hands, and he swallows it. I consider the lead-poisoning in every form of trade, not only painting, could be very largely eliminated by the use of proper care on the part of the men themselves, and by the provision on the part of the employers of warnings and of instructions as to the hygienic care that should be exercised.

4484. Do you assent to this about the dry rubbing-down, that is caused in that way; supposing that we abolish altogether the dry rubbing-down and substitute wet rubbing-down, which they can do, do you think that would remove the cause?—I am perfectly sure that would remove 75 per cent. of the lead-poisoning from the painting industry—that one thing alone.

4485. The next in the measure of importance so far as you are concerned, is the cleanliness?—Yes.

4486. The provision of facilities for washing?—Yes.

4487. And proper time for washing?—Yes, and more than that the education of the men as to the dangers they are incurring. Then there is the education of the employers, to provide literature, and really a campaign of safety first to be instituted on the value of this to those concerned in the industry. Let everybody be made to understand how the poison occurs and to guard against it.

4488. I suppose the main fact to be known is that white-lead is poisonous?—Yes. But it is not more poisonous than other compounds of lead. All those compounds are poisonous. White-lead is poisonous, but not any more poisonous than any other compound of lead.

(Witness retired.)

RALPH JOSEPH PERDRIAU, recalled, further examined as under:—

4489. DEPUTY-PRESIDENT: You were to have prepared for us some statistics showing the effect of the records received by the Department of Labour and Industry in connection with claims under the Workmen's Compensation Act?—Yes. [*Producing documents.*]

4490. Will you please describe the paper from your point of view?—These are the returns of compensation paid in lead-poisoning cases, taken from the official statistics.

4491. How is matter contained in the official statistics collected?—From returns made by employers as to the amount of compensation that has been paid.

4492. And are those returns made as a matter of public duty under the sanction of law?—Yes, under section 16 of the Act.

4493. A regulation or a section?—A section, and under the regulations, too.

4494. Then the returns prescribed by law are made to the Minister for Labour and Industry?—Yes.

4495. And when those returns are received by the Minister for Labour and Industry are they worked upon by yourself?—Yes. The statistical clerks collate them and make up these tabulations.

4496. Are you responsible for the correctness of the tabulation which is made?—Yes.

4497. And for the method in which that tabulation is published?—Yes. I have shown the particulars in the Broken Hill district, and for other parts of New South Wales, mainly because the bulk of the cases occur in the Broken Hill district. The particulars are: In the Broken Hill district in 1918, smelting and reduction works, one case, the compensation paid being £94. In other parts of New South Wales: In cycle and motor cycling manufacturing there was one case, the total compensation being £10; then the electric lighting, one case, the total compensation paid being £12. In the furniture manufacturing there was one case, the compensation paid being £17. In the meat-preserving there were two cases, the compensation paid being £14. In rubber manufacture there was one case, the compensation paid being £8. In stove manufacturing there were two cases, the compensation paid being £43; and in tinsmithing there was one case, the compensation paid being £2. In 1919 in the Broken Hill district, metalliferous treatment, there were thirty-nine cases, the compensation being £2,656. In other parts of New South Wales, painting (in the building industry), there was one case, the compensation paid being £428.

4498. That was a case of death, I presume?—I think it was; I think that was the case of Gilberd. In 1920, in the Broken Hill district, in mining and mineral treatment there were sixty-one cases, the compensation paid being £10,420. In other parts of New South Wales (all metropolitan districts) there were nineteen cases, the total compensation paid being £2,428. With regard to 1920, there is a detailed list showing the cases in the metropolitan district.

4499. Before you get to that, there is at the foot of the first page a note referring to cases examined by certifying surgeon?—Yes. That shows just the number of cases which have presented themselves to the certifying surgeon for his certificate. There have apparently been none outside of the Broken Hill and metropolitan districts. At Broken Hill we have no record until 1919, when there were ninety-six cases; in 1920 there were 132 cases, and to the 30th June of this year there were seventy cases.

4500. Are these years calendar years ordinarily?—Yes. In the metropolitan district there were two cases in 1918, three in 1919, fifteen in 1920, and three to the 30th June of the current year.

4501. On the second page you have detailed information, and you were about to tell us of that?—Yes. These are cases of lead-poisoning compensated during the year with regard to the metropolitan district.

4502. The first sheet is headed Broken Hill district?—Yes. They all occurred in connection with the mining and mineral treatment there.

4503. Will you take the Broken Hill first?—Yes.

4504. It is headed, "Broken Hill District (county of Yancowinna). Cases of Lead-poisoning Compensated during the year 1920. Mining and Mineral Treatment." That year, 1920, is the earliest year for which you have this information?—The detailed information.

4505. That gives the name of the employer and the age of the person affected?—Yes. The dates are all blank.

4506. It gives the occupation of the person affected and the duration of his illness, and the average male employees. What does that mean?—The average number of employees which they employed during the year; then the compensation in each of the cases is shown. Then there are the details with regard to the metropolitan district court district; you have the same information there. It is headed, "Cases of Lead-poisoning Compensated during the year 1920," and it shows the employer's name, the industry in which the men were engaged, the age of the workmen, the date that they were off, their occupations, the duration, the average male employees, and the compensation paid.

4507. In this case, you might review the section relating to painters. They all appear together in that sheet?—Yes. In painting, Stewart Brothers, Camperdown, one case. Apparently we have not his age.

4508. Who are Stewart Brothers?—I think they are builders on a pretty large scale. The 11th December, 1919, was apparently the date of the case.

4509. How is it the age was missing? Was it a failure to complete the return as it ought to have been completed?—Yes.

4510. It is not an omission from the sheet?—No. It is simply that the employer probably did not know his age at the time and cannot get it now.

4511. The next case you have down is Mr. A. G. Sayers, of Rose Bay; he employed a painter of the age of 55 years, who was off for eighteen weeks?—Yes, and he was paid £36.

4512. Mr. Miner employed a painter of 38 years of age, who was off for two weeks?—Yes, and he paid him £4.

4513. Messrs. Mason and Fletcher employed a painter of 60 years, who was off for thirteen weeks, and paid him £26. Mr. F. Thomas, of Woollahra, employed a painter of 32 years of age, who died in respect of lead-poisoning, and in respect of whom £500 was paid. The Colonial Sugar Refining Company employed a painter of 49 years of age, who was off for three weeks and five days, and to whom £7 13s. 4d. was paid?—Yes. The number of employees was left out there, because it was obviously ridiculous to put in the number that was employed by the Colonial Sugar Refining Company, because very few of them would be painters.

4514. The Building Construction Branch (that would be the Public Works Department, I take it) employed two painters of 55 and 48 years of age respectively, and lost them both?—Yes, they were both fatal cases.

4515. And they had to pay in respect of one £528 and in respect to the other £519?—Yes.

4516. You do not give the dates in respect of the cases coming from the employment of the Colonial Sugar Refining Company or the Building Construction Branch?—No, that has evidently been omitted in the returns.

4516½. But would not the date in the fatal cases be mentioned in the return?—Apparently it is not so. But I will get those looked up.

4517. You see, there are three fatal cases out of a total of eight cases of painters?—Yes. I will let Mr. Woodham have those cases if I can get them.

4518. DEPUTY-PRESIDENT: I think this document had better be made an exhibit in the case, then it can be reproduced, and copies can be provided for the use of the parties. [*Returns of compensation paid to lead-poisoning cases in the years 1918, 1919, 1920, and to 30th June, 1921, put in, marked Exhibit No. 5.*]

4519. Mr. MANNING: I was wondering under what circumstances this information was obtained?

4520. DEPUTY-PRESIDENT: You can examine Mr. Perdriau upon the matter.

4521. Mr. MANNING: For instance, do you know if any specific questions are sent out to employers in this matter?—No. There is the prescribed form under the Act. The employers fill in that form.

4522. Have you got that form here?—No.

4523. DEPUTY-PRESIDENT: The form is published with the regulations under the Workmen's Compensation Act of 1916.

4524. Mr. MANNING: Do you know what section of the Act or Regulation refers to it?—Section 16: "Every employer in any industry to which the Minister may direct that this section shall apply shall, on or before such day every year as the Minister may direct, send to the Minister a correct return specifying the number of injuries in respect of which compensation has been paid by him under this Act during the previous year and the amount of such compensation, together with such other particulars as to the compensation as the Minister may direct, and in default of complying with this section shall be liable on conviction to a penalty not exceeding five pounds."

4525. DEPUTY-PRESIDENT: There is a regulation affecting that to some extent?—Yes, that is part 3 of the schedule.

4526. That is the form which appears in the fourth schedule, part 3, Industrial Diseases?—Yes.

4527. That is the form upon which the Minister receives the returns from the employers?—Yes.

4528. Mr. MANNING: What I wanted to know was whether there was any request on the form as to the cause of death?—In the last part, D, it says: "Further particulars as to the cause of industrial diseases."

4529. But supposing he does not suffer from any of these industrial diseases?—He would not be returned.

4530. Does he fill in any other return?—No, he would not have a claim under the Act.

4531. But I mean accident?—Then you would fill in the accident form. That is part 2.

4532. Supposing a barrel of stuff fell down on him?—Then you would fill in part 2 of the 4th Schedule.

4533. At any rate, this return is something done in compliance with the form on page 160?—Yes.

4534. Lead-poisoning or its sequelae?—That is so. Further on there is another part relating to lead-poisoning.

4535. DEPUTY-PRESIDENT: The same description of the disease with different processes?—Yes. This is merely taken from the third schedule of the Act.

4536. Mr. MANNING: The whole lot?—Yes, the whole thing.

4537. Mr. MANNING [*to the Board*]: Having got that, the next thing is to find out on what information the company made its returns, I mean, so much depends upon the validity or the invalidity of even one case in a matter of this kind.

4538. DEPUTY-PRESIDENT: I think you had better examine Mr. Perdriau upon the value of the returns. First of all I would like to ask him this: is this summary which you have provided for our use to-day prepared particularly for the Board's purposes?—Yes.

4539. It is not prepared in the ordinary course of your duties?—Well, ordinarily the information that appears in our published returns is similar to the summary that appears on page 1 of the documents I tendered.

4540. That is, you publish every year in the *Industrial Gazette* a summary of the effect of the returns received by the Minister under the Acts and Regulations?—Yes, just showing the number of cases, the industries, and the amounts paid as compensation. Then for the purposes of the Board I have prepared these documents to show practically every individual case.

4541. DEPUTY-PRESIDENT: Mr. Manning, will you examine Mr. Perdriau with regard to the completeness of the returns and their estimated value?

4542. Mr. MANNING: That is what I had in mind, and I thought that rather than examine Mr. Perdriau it would be better for me to suggest that information might be got as to the materials from which these returns were based, because that is the real thing. I mean, one could ask Mr. Perdriau question after question and he would not know anything about it.

4543. DEPUTY-PRESIDENT: I think you will find that Mr. Perdriau knows a good deal about the degree to which this duty is being discharged by employers.

4544. The onus is cast upon employers to make the returns?—Yes.

4545. Have you any reason to believe that the returns are not made as completely or as often as they ought to be made by those upon whom the duty falls?—No, I do not think so. At the end of the year we check up the accidents. I deal first of all with accidents, because although we get very few returns in regard to industrial diseases we get a considerable number in regard to accidents. We get reports from the police, the scaffolding inspectors, and from the factories branch in regard to the accidents which occur in industries, and we check the returns of the employers to see whether they return their accidents.

4546. Mr. MANNING: And also the industrial diseases?—Yes, but we have not got the same checks in regard to industrial diseases.

4547. DEPUTY-PRESIDENT: Because the policeman does not know that one man is suffering from an industrial disease, whereas he does hear that an accident has happened to him.

4548. WITNESS: And the fact that we exercise a considerable amount of supervision over the accident returns would mean that the employers would not be very lax in returning their industrial disease cases, too.

4549. Mr. MANNING: Have you reason to suppose that the employers are lax in returning the industrial diseases?—No.

4550. DEPUTY-PRESIDENT: What degree of laxity exists with regard to the returns of industrial accidents in the light of the returns you supply?—I think over 100 cases of accidents that we knew of had not been reported to the Department.

4551. Out of a total number of how many?—I could not say from memory, but I could get you that information.

4552. Have not you made up the returns for the last year?—They are not completed. We are keeping them open in order to include the defaulters.

4553. That is, those who ought to make their returns?—Yes.

4554. DEPUTY-PRESIDENT: A considerable amount of doubt apparently attaches to the return as a complete document.

4555. Mr. CONNINGTON: But it cannot be less than the list.

4556. DEPUTY-PRESIDENT: Oh no.

4557. WITNESS: When Dr. Graham was giving evidence, I think he said there were four or five cases from the Accumulators Limited. From the Accumulators Limited we have only returned three cases last year.

4558. Mr. MANNING: That is a very interesting subject, which we might further investigate. That is why I asked the doctor those questions about the symptoms. It is perfectly obvious to the Board what our position is in the matter. We are going to call some scientific evidence.

4559. Mr. ROUTLEY: Some of those cases of the Accumulators occurred this year, Mr. Perdriau.

4560. WITNESS: That would account for it, then. These are only during the last calendar year, 1920.

4561. DEPUTY-PRESIDENT: You are unable to put forward the exhibit that you now tender to us as a complete record of all industrial diseases that may have been the cause of injury to employees or even the basis for claims by employees in the case of the period for which the return is given?—No, I could not say that, sir.

4562. Mr. MANNING: Of course, the Accumulators would not affect us, because that is not a claim.

4563. DEPUTY-PRESIDENT: No; the information we have goes to the completeness of the returns.

4564. Mr. MANNING: What I meant was this: I do not know that it is much use my worrying Mr. Perdriau, because in the ordinary course of things he would not have the necessary knowledge—that is to say, what were those cases, and who diagnosed them.

4565. DEPUTY-PRESIDENT: No; I take it he has no knowledge upon that at all.

4566. Mr. MANNING: He would not know anything about that. Then I should think it might be necessary for us to go into it at some time or other. If you have a return which is a small return like this, involving only a few cases, it is perfectly obvious that you must go further into the matter and find out whether the information is reliable, and above all things whether you can get data to put before a scientific witness when he arrives here to speak about these things. Would it not be better to get that information and have it in the best form in which we can get it?

4567. DEPUTY-PRESIDENT: The cases are not numerous. It should be possible to get the records of the cases, the claims made, and the medical basis of the claims put before us by the insurance company that paid the money where the man has been compensated. There may be a case or cases in which the man has not been compensated.

4568. Mr. MANNING: Yes. Of course, the reason for that is to deal with the scientific evidence when it comes along. If it were not for that it would not be of any use pursuing that matter any further. When it is obvious that it is to be dealt with scientifically, it seems to me that it is necessary to get that evidence. It will not take long to get it.

4569. Mr. CONNINGTON: Will the Board decide as between doctors? It will be a pretty difficult matter.

4570. DEPUTY-PRESIDENT: Not as blankly perhaps as you put it, Mr. Connington; but the Board will have to exercise its intelligence in the light of the evidence that is tendered to it, and it may even have to decide as between doctors.

4571. Mr. CONNINGTON: I know the difficulty of it.

4572. Mr. MANNING: I think that by the time the medical evidence is all examined it will lead to one definite conclusion. That is what I

suggest. I mean there are some slight differences that have to be dealt with by the doctors, and I have no doubt that they will be able more or less to reconcile them.

4573. DEPUTY-PRESIDENT: We can only test the value of such evidence by examining the medical men as to their method.

4574. Mr. MANNING: First of all, there is the outside sheet, which was dealt with first. There are no cases of lead-poisoning from paint there.

4575. DEPUTY-PRESIDENT: You are reading the detailed sheet.

4576. Mr. MANNING: Yes, it is headed "Returns of Compensation Paid in Lead-poisoning Cases." There is no case of painting.

4577. WITNESS: Look under 1919. First of all, you have the Broken Hill district, then you have the other parts of New South Wales. There is "Painting (Building), 1." That is the only one for 1919.

4578. Mr. MANNING: We do not know any more about it;—We do not know where it is?—No; but I have an idea that was Gilberd's case.

4579. DEPUTY-PRESIDENT: Does the return give you information that will enable us to identify the man?—I think so.

4580. Could you produce that return?—I do not want to, sir, unless you really want it, because it means sending a man down to Dawe's Point to dig the thing out.

4581. I see; the records have been put away?—Yes, they are practically discarded.

4582. Mr. MANNING: The reason I want it is that I would not like it to be said afterwards that there was one case referred to in this document, three by this man and four by that man, and the insurance man brought five, and that made a dozen altogether, and then they all turned out afterwards to be the same case.

4583. WITNESS: In this case the amount was £428, and the case of Gilberd was before the Court, and the amount there was £428, and it was in the same year; so that I think we can reasonably assume that that was Gilberd's case. I do not want to send this chap down to Dawe's Point unless there is some real need for it.

4584. Mr. MANNING: I think that might be taken to be Gilberd's case if the amount is the same?—The amount is exactly the same.

4585. And the year is the same?—Yes.

4586. And the cause is the same?—Yes; and it is shown there as painting.

4587. As far as that is concerned, there is nothing further required there except that it might be stated that the man there is Gilberd?—Probably.

4588. You can state that, that to the best of your belief the one case in 1919 is the case of Gilberd?—Yes.

4589. DEPUTY-PRESIDENT: Have you any explanation to offer for the discrepancy between the records for 1919 and 1920;—the other parts of New South Wales in 1919 contributed but one case, and in 1920 they contributed nineteen cases of lead-poisoning?—No.

4590. You can suggest no explanation for the discrepancy between the figures?—No.

4591. Mr. MANNING: As to the second sheet to which you referred, that is headed "Broken Hill district (county of Yancowinna). Cases of lead-poisoning and compensation paid during the year 1920." There are no painters there?—No. They are all mining.

4592. We can leave that, as we are not concerned with that. The last sheet is the sheet containing the painters. That is the Metropolitan District Court district?—Yes. When I was giving evidence before I said that the Broken Hill district was the Broken Hill District Court district. It is

really only the county of Yancowinna that we are concerned with. That takes in all the mines. The Broken Hill District Court district runs right up to Milparinka and embraces quite a number of counties. The county of Yancowinna is all we treat as the Broken Hill district.

4593. There are eight painters there?—Yes.

4594. There are painters 8, others 11, total 19. The case of each of those men, I suggest, ought to have separate examination to see what they really are. Perhaps you could offer some suggestion as to the most effective way of getting reliable information?—I think the best thing would be to dig out the returns in those cases and produce them.

4595. DEPUTY-PRESIDENT: Those cases have not been put away?—No, they are working on those at the present time.

4596. Certainly you will be able to help us if that is done. We can then get a reference in the returns to the insurance company involved?—Yes. We shall have the name of the company involved, and probably the name of the insurer.

4597. Mr. MANNING: The kind of thing that is present to my mind is that file which was produced here about the second or third day when they showed an extraordinary variety of medical opinions.

4598. DEPUTY-PRESIDENT: You mean, the document produced by the Treasury Insurance Department?

4599. Mr. MANNING: Yes. There were about half a dozen different files produced, and there were a most extraordinary variety of medical opinions. I say to the Board in a case like that, do not base it as, or say it is, a case of lead-poisoning, unless you can be sure that it is. I mean, it is no good sending in a return to the Geneva Conference which is a pure speculation. What they want to know is definite facts. If a case cannot be established beyond doubt as a case of lead-poisoning I do not suppose it would be included. That is the position I put to the Board.

4600. DEPUTY-PRESIDENT: It is open to you to attack the basis upon which any compensation has been paid. The insurance companies are very apt to protect their funds with extreme care, and if payment has been made in respect of a supposed case of lead-poisoning, *prima facie* it is a case of lead-poisoning.

4601. Mr. MANNING: Yes, *prima facie*, I should say it was, but only *prima facie*.

4602. Mr. CONNINGTON: I think you can be sure it was in a case like that.

4603. Mr. MANNING: I mean, nobody suggests it is conclusive evidence.

4604. DEPUTY-PRESIDENT: No, I do not think it would be conclusive, but at the same time it is the kind of evidence that we must accept, unless it is attacked, and successfully attacked. You see, the same thing applies to the official statistics. The mortality returns are based upon doctors' certificates, some of which I have no doubt are given a little carelessly—most of which are given without any particular knowledge of the man's particular employment when alive.

4605. Mr. MANNING: The class of case I have in my mind is this: suppose a man is suffering from some sort of paralysis, incipient paralysis, which is not attributable to lead in any way. He goes to work as a painter, and he shows a lead-line. The lead-line may be indicative of poisoning, or it may be indicative of the fact that he is simply in contact with lead, according to Dr. Graham's evidence. Supposing it turns out on inquiry from the records that compensation was paid that man as and for lead-poisoning, whereas in point of fact it is a thousand to one that he died of the other thing. I do not suppose that case would be one of lead-poisoning. Probably an examination would be made there, and a mistake may have been made.

4606. DEPUTY-PRESIDENT: We can only use our intelligence in the light of the facts put before us.

4607. Mr. MANNING: If those records are produced here, we can see what other doctors said about it—doctors who had an opportunity of examining the man carefully, as distinguished from the insurance doctor who made a sort of cursory examination of the man for the purpose of reporting for compensation. It must always be borne in mind that when an examination of that kind is made it is made for the purpose of determining whether a claim should be resisted if taken into court. The tendency with doctors is, as it is with our profession, to advise against resisting a claim if there is any likelihood of the man being able to call the evidence, because one knows how hopeless it is to fight these things, if he has any evidence at all. However, I just mention that now, that I think it would be just as well to get whatever information we can about these painters.

4608. DEPUTY-PRESIDENT: I think so. I think it is advisable to do so.

4609. Mr. MANNING: I do not want to suggest anything that is a waste of time, but I do not think this would be any waste of time.

4610. DEPUTY-PRESIDENT: No.

4611. Mr. CONNINGTON: We also think that we would like something further to be done, if it can be done, with regard to the 120 cases whose names I put in before the Board on the first sitting day. That would be a test, anyhow, as to the *bona fides* of the position from the point of view of the Painters' Union.

4612. DEPUTY-PRESIDENT: Mr. Connington's suggestion amounts to this: that the doctors who certified that these patients of theirs were suffering from lead-poisoning should be called here to attest to the validity of their diagnoses.

4613. Mr. CONNINGTON: Or the men examined.

4614. DEPUTY-PRESIDENT: But the man does not know anything about his own case. He believes what he is told.

4615. Mr. CONNINGTON: And perhaps all traces of the disease may have left them by now.

4616. DEPUTY-PRESIDENT: Anyhow, he could only say, "I have had pains, or I have suffered in a particular way, and it has been explained to me by a medical adviser that my condition is a condition of lead-poisoning, or was a condition of lead-poisoning." That is all he could say. He merely quotes the doctor. The shortest way to get at the facts is to tell the doctor that on a certain day it is alleged that he attended a certain man of a certain name for lead-poisoning, and to ask him whether he will please come before the Board to attest to the fact, and bring his note-book with him.

4617. Mr. CONNINGTON: Another way would be to have an examination of the men, as suggested by some. That would be a great help if it can be done.

4618. DEPUTY-PRESIDENT: I understand from a remark made by Mr. Manning at the last sitting, that he cannot support your application that there should be a general clinical study of the health of operative painters.

4619. Mr. CONNINGTON: That is Mr. Manning's view. I am not complaining of it. The only thing is that we say we made the offer, and are still making it.

4620. DEPUTY-PRESIDENT: Yes. There are two things that militate against the adoption of your suggestion. One is that the Board will require a special appropriation of moneys to enable any such study to be carried out. As a matter of fact, the Board is not the authority to organise the health survey that you suggest should be made, and it could only recommend that some administrative department should undertake the responsibility of carrying the work through. It would then probably be met with two objec-

tions: first of all, that the department equipped for the work could not undertake it within a reasonable time, and secondly, that, if the department were willing to undertake the work at once, the Treasury could not provide the funds necessary for the purpose at this juncture. It is significant that the British inquiry, to which reference has been made, and which I have made it my business to become familiar with, did not have recourse to any health survey at all.

4621. MR. CONNINGTON: No. They inquired in a general way, as you are doing.

4622. DEPUTY-PRESIDENT: If the Board were to advise the Government that a health survey was necessary in its opinion, the Government might say that inasmuch as the mother country has been able to take what steps are necessary to determine the condition of the health of painters and others without recourse to a survey, we ought to be as well equipped ourselves.

4623. MR. CONNINGTON: From my point of view, I am quite willing that you should adopt that method, which is the one usually employed in other countries and by other commissions. But in order to establish our *bona fides* and to make sure that we have no fear of any test that may be put physically, as far as the union's case goes, I made the offer, and I still say it is open. From your point of view I see the difficulties, and in that way I ask you to take such evidence as we can put before you from time to time, using your own view as to its value or otherwise.

4624. DEPUTY-PRESIDENT: Any evidence that you think should be made available to us we will endeavour to get.

4625. MR. CONNINGTON: And then you will afterwards, with that and the other evidence, form your own conclusions, and I suppose you will, after all, have quite as much to act upon as any of the other commissioners have had.

4626. DEPUTY-PRESIDENT: Personally, I think that a clinical study is necessary for a complete understanding by the Board of the health conditions of this particular class of employees. I cannot go beyond that.

4627. MR. CONNINGTON: The other countries have had commissions and made inquiries, and in all cases they have acted upon general statements made by employers and employees, union secretaries, and the like. At the same time, their minds have been influenced, apparently, from your reports, by what has occurred in other countries and the articles of by-authorities on the question.

4628. DEPUTY-PRESIDENT: Yes. We will not shut out any reference to scientific and other authority that will enable us to exercise such judgment as we can bring to bear upon the subject with the greatest degree of wisdom.

4629. MR. CONNINGTON: We have been willing all through, and are still willing to do our best with the evidence. It will, of course, be open to criticism unless these men are submitted to personal examination. If you want that evidence we will bring it along.

4630. DEPUTY-PRESIDENT: I do not know that at this moment we need branch off on to that line of evidence. We had better wait, I think, and find out what information or what help we are going to get from the scientific witnesses to be called by Mr. Manning. You might, in the meantime, analyse that return that you have before you and find out how many doctors have given certificates. You see, there are 120 men, but not necessarily 120 doctors.

4631. MR. CONNINGTON: We will collate that for the Board.

4632. DEPUTY-PRESIDENT: The names of the doctors involved may not number more than thirty or forty.

4633. MR. CONNINGTON: We shall do that for the Board.

4634. DEPUTY-PRESIDENT: You might tell us also whether they live close to the city or not.

4635. Mr. CONNINGTON: Very good. We will endeavour to provide a list of the doctors. After 2 o'clock to-day we shall be bringing a witness who is the secretary of the union, who can speak with regard to the railways and his experience there. I think he can give you a good deal of information.

(Witness retired.)

NORMAN KNUDSON, sworn, examined as under:—

4636. DEPUTY-PRESIDENT: What are you?—I am the foreman painter at the present time in the Permanent-way Department of the Railway Commissioners.

4637. You have a paint-shop which attends to the needs of the Permanent-way Department exclusively, and distinguished from the carriage needs and the rolling-stock needs, I understand?—Yes.

4638. Where is your paint-shop?—In Sydney yard at present.

4639. At Eveleigh?—No; at what they call Sydney yard, which is near to Eveleigh, but not in the Eveleigh workshops. We do not do a great deal of shop work. We also have a shop at Lidcombe, where we keep two or three painters employed.

4640. How many men are employed altogether in connection with the painting work of the permanent-way?—We have forty-eight.

4641. Those are the men employed at this particular time?—Yes.

4642. What is the average number of men employed in connection with the same work?—For the last four years—about forty.

4643. Would that number include painters' labourers as well as painters?—We have no painters' labourers.

4644. What is the nature of the work that is performed by the tradesmen in the permanent-way workshop?—The station buildings—.

4645. Would you classify them as house-painters?—Yes, they are all house-painters, practically.

4646. And their attentions are given to?—Station buildings, bridges, tank-stands, crossing-gates, and any other incidentals.

4647. What men attend the signals?—We do that also.

4648. As well as the signal-boxes?—Yes, although there is a branch belonging to the signal engineer which does some, but we are practically doing all that class of work.

4649. How long have you occupied your present position?—Two years.

4650. What were you before?—Leading painter in the Railway Department.

4651. In the permanent-way branch workshop?—Yes; I was over forty-two years there.

4652. How long is it since you actually used the brushes and mixed the paints?—Only the last two years since I ceased.

4653. Have you ever suffered from any illness attributable to your association with lead paints?—None whatever.

4654. Have you had reason to consider that men working in the paint-shops with you have suffered from their association with lead paints?—Only in two cases that I had brought under my notice during the last twelve years. There was one man named Ross who, about nine years ago, was supposed to be "colicky," and his doctor said he had painter's colic.

4655. What was his front name?—Ernest Ross.

4656. What was the year?—He just gave me about nine years ago.

4657. Shall we say then that it would be in 1912 that he suffered from this illness?—About that.

4655. Can you give us any information with regard to his case;—was he off for a long time?—No. He said that his doctor said he had painter's colic, and he was off colour for a couple of weeks, but did not lose time. He now says that since then he has not been affected.

4659. You discussed his health with him for the purposes of this inquiry?—Yes, I discussed it with him since I was down here last Monday.

4660. What is the next case?—Archibald McDougall. Three years ago he was indifferent in health for several weeks.

4661. Did he lose time?—The doctor finally told him he was leaded, and to give up the trade, which he was compelled to do; and he got that bad that his family called in another doctor, who immediately had him removed to the Prince Alfred Hospital. He was operated on at once for appendicitis. The first operation did not prove successful, and he had to undergo a second in a few weeks' time. Since his discharge he has felt no effects of poisoning, and maintains he never had it.

4662. Is he in the painting trade now?—Yes.

4663. He returned to the trade?—Yes.

4664. After he recovered from his second operation?—Yes.

4665. How long ago would it be since he returned to the trade?—He was only off for about three months, practically.

4666. Operations and all?—Yes, the whole lot.

4667. Does that represent the whole of your experience in sickness in the permanent-way shop?—As far as medical certificates are concerned. Of course we have little sicknesses, but nothing attributable to paint. I have a list here also of the number of men who have been off during the last twelve months, showing the number of days. During the year 1920 to 1921 the undermentioned number of painters were off duty through illness, &c.:—1 man, influenza, five days; 1 man, four days; 1 man off with eczema, thirteen days; and one man with cellulitis of the leg, off for three months.

4668. Does that complete the list?—Yes. There is some information about the ages of the painters, and so on, which I did not read.

4669. You have tabulated for our purposes the materials used during the year 1920 to 1921?—Yes.

4670. And you find that in the shop you have used 15 tons 14 cwt. and 5 lb. of white-lead, 5 cwt. 1 qr. and 7 lb. of zinc white, 2 cwt. 1 qr. and 24 lb. of umber burnt Turkey, 8 cwt. 2 qr. and 22 lb. of sienna burnt, 10 cwt. of Oxford ochre, 1 ton 1 qr. and 11 lb. of red lead, and 1 ton 8 cwt. and 3 lb. of oxide of iron?—Yes.

4671. You have used 78 gallons of mixed paints?—Yes.

4672. Those are proprietary paints, ready to apply?—Yes.

4673. Otherwise, in respect of vehicles, you have used 1,444 gallons of raw linseed oil, 279 gallons of boiled oil, 59 gallons of bridge-grey paint, 244 gallons of turpentine, and 138 gallons of terebine?—Yes.

4674. Those figures signify that the paint principally in use is a paint with a white-lead base?—Yes.

4675. And the practice of using paints with a white-lead base has obtained in the permanent-way shop throughout your experience?—Yes.

4676. You have collected some information with respect to men who have had particularly long periods of service in the permanent-way shop?—Yes.

4677. Will you give us that information briefly?—Yes. One was foreman carter; he was for forty years in the Railway Department.

4678. As a painter all the time?—For about thirty-five years; he was five years foreman. He retired at the age of 61, and he died at the age of 86 from an accident. Another was James Laidlaw, retired two years ago; he was 40 years in the service, and he retired at 60; he is still hale and hearty at 63. Henry Church, forty years' service, retired at 61, is now 67, and is

still alive. Joseph Hennessy, with forty years' service, retired at 63, and is now 65. William Breeze, with forty years' service, retired at 60; just retired a fortnight ago. Samuel Lennon, with twenty-eight years' service in the Railway Department, retired at 63 years of age and is now 64. Joseph Barber and Hibble are both 63 years of age and are still working in the Department. The whole of the above men have been at the trade practically all their lives, and although retired are still, some of them, doing a bit at the trade.

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

On resuming at 2 p.m.:

4679. Mr. CONNINGTON: You have been a foreman for two years?—Yes.

4680. Prior to that were you an operative painter?—Yes.

4681. A working operative?—Yes.

4682. As a working operative you would not come into touch with the records of the Department, would you?—To a great extent I did, because I was assistant foreman for four or five years, and I used to relieve the foreman or anything like that.

4683. And then you would get a fairly extensive knowledge of what was happening?—Yes.

4684. The forty men you speak of, are they on year in and year out?—We have had changes at times, but for the last four years we have had very little changes.

4685. Is it a fact that at the end of each year hands are put off, or practically all of them are put off except nine or ten?—It used to be so some years ago, but this last three or four years we have not had to resort to those tactics on account of the work coming in. Last year, and this year up to the present time, we have not put off a single man. At the end of June, which is our financial year, we very often have our yearly works complete. That is, so many stations set apart which comes into the yearly programme. Apart from that, thousands of pounds worth of work comes in incidentally. This last three or four years we have not had such a big staff on. We used to carry 100 to 125 men, but for the last four or five years we have only carried from forty to fifty.

4686. At one time you used to carry a large staff?—Yes.

4687. And the practice used to be to put off the bulk of them at the end of each year?—Yes.

4688. And then you engaged a fresh lot next year?—We always give preference to the men who give satisfaction. We keep their names and addresses, and when we want any more men we generally write to them. We consider them if they have given us satisfaction and send for them again.

4689. That is, of course, if he is out of work at the time you need him?—Yes. We write then and they generally acknowledge the letter and say whether they are fully employed or otherwise. If they are fully employed we do not wait. But if they say they can come in a week or two we always wait for them.

4690. How many days a week do your painters work?—We have worked six hitherto, but now they are working a five-day week.

4691. Do they prefer the five-day week?—Yes.

4692. Mr. CONNINGTON: I am not asking the question with any other purpose in view, but I would like to ask you if it is thought that some restriction should be placed on lead; whether there would be any advantage in working the hours, leaving the men free at week-ends. I do not know whether that would be one of the matters you would consider, Mr. Deputy-President?

4693. DEPUTY-PRESIDENT: It is a purely supposititious case so far as this witness is concerned, because he says there is nothing to guard against in the way of ill-health.

4694. Mr. CONNINGTON: If he sticks to that evidence throughout, that will be the position as far as he is concerned.

4695. Is the efficiency of the Department impaired by the men being free at the week-ends?—I do not think so. I think they get just as good results in the five days as they did in the six. That is, at our particular trade.

4696-7. DEPUTY-PRESIDENT: Do you think the same amount of paint is spread?—Certainly not.

4698. Mr. CONNINGTON: I was not asking the question on that point. The forty-four hours is established in the industry, and they are working it in five days. What I was asking the witness was whether on the basis of a forty-four-hour week the efficiency of the Department was impaired owing to the men only working five days.

4699. Can they do as much work in five days of forty-four hours as they could in five and a half days of forty-four hours?—Yes, I see no reason why they cannot.

4700. And do they, as a matter of fact?—We have only had it in vogue for a week, so it is rather premature to say, but I see no reason why they cannot do as much on the five days. In fact, I would be inclined to think that they would give a better result in this way, that you would have more breaks in six days than you would in the five, and every break means a certain amount of loss.

4701. The men are looking forward to the break?—Yes, and there is always a minute or two one way or the other at every break.

4702. DEPUTY-PRESIDENT: How long have you been working forty-four hours?—Only this week—since last Friday.

4703. Before the 1st July you worked forty-eight hours?—Yes, in the six days.

4704. Mr. CONNINGTON: As a practical painter and as a foreman you think that the five-day system might be likely to be more beneficial—

4705. Mr. MANNING: I am not objecting to any of this, but what has this to do with the use of white-lead in paint?

4706. DEPUTY-PRESIDENT: Exposure to risk is the only justification Mr. Connington can allege for this line of examination.

4707. Mr. CONNINGTON: That is all. I agree with that.

4708. Mr. WILLINGTON: If they do the same amount of work, will that make any difference?

4709. Mr. CONNINGTON: I do not know. I am not authorised to do this, but if it is found that freedom from the job is likely in this particular case to act as a preventive or assist them to rid themselves of some of the effects—

4710. DEPUTY-PRESIDENT: To mitigate the effects of the risks to which they are subjected.

4711. Mr. CONNINGTON: Yes. Then the Board might say, "Well, although the week-end would prove beneficial in that regard, still there is another aspect to be considered, and that is, what would be the cost of any recommendation we may make in this regard."

4712. DEPUTY-PRESIDENT: You are suggesting that you might have to suggest to the Board that by a further reduction of the working week the risk would be reduced substantially?

4713. Mr. CONNINGTON: Supposing it came to the point that the Board said, "Well, will a reduction in hours"—I am not putting anything like that forward; this is a supposititious case; supposing medical testimony showed that a reduction of hours is justified and would tend to mitigate the effects

of the work during the week, then the Board would like to have some expert opinion as to the effect of such a change on an industry, I presume.

4714. DEPUTY-PRESIDENT: Yes.

4715. Mr. CONNINGTON: From that point of view it may or may not be valuable.

4716. From your point of view the forty-four hours in five days might be more beneficial than forty-four hours in six days?—From the point of view of the effect on the men's health?

4717. No; beneficial to the Department?—I think they get the same results.

4718. From the standpoint of health do you think there is any need to allow men to be free at the week-end? You know the painting trade; you have been in it quite a number of years?—Yes.

4719. Do the men in the industry complain of any small sicknesses such as headaches and colic, and the like of that—sicknesses which do not lay them up, but which affect them from time to time?—Where you have a body of men there are always a few sicknesses like that, but they do not attribute it to the work. We do not get any complaints, generally speaking, from the men we have. Of course, they have their sicknesses, the same as all other trades. With the exception of those four I have enumerated, that are certified to by the doctor, we have had practically no men off with sicknesses at all. Of course, you will sometimes find men come to work who have little sicknesses, but that is their own fault; they might have had a night out or something like that.

4720. You say definitely that so far as you know you cannot say that there are any sicknesses complained of which you would attribute to the men's work?—No.

4721. The information contained on this document of yours has been taken from an official record?—Yes.

4722. Are there any records in your Department which would show the absences of men from work due to illnesses?—It shows there only the men who have had certificates. Medical certificates after one or two days come in also at times. Any man who does not turn up to work to-day has to be reported by the man in charge of the work, and that report is sent to the office. If the man returns before three days he does not have to produce a doctor's certificate, but if he is off for three days he has to produce a medical certificate before he can be taken on again. If he remains off fourteen days he has to go to a medical officer before he can begin work again.

4723. There are some men who might be off one or two days?—Yes.

4724. Or who might be off for three days?—Yes.

4725. And may be off for fourteen days; and their names would not be on this list?—Yes, any one over three days would be on that list.

4726. But anything under that would not appear on the list?—No. Any one over fourteen days would be on that list, because he would be a medical officer's case.

4727. But anybody under fourteen days would not be on this list?—No.

4728. DEPUTY-PRESIDENT: Do you mean that—a man who is absent for three days must produce a medical certificate explaining his absence?—Yes.

4728½. And inasmuch as the record would contain a reference to all medical certificates received in respect of absences, your computation would show absences that were in excess of three days ———

4729. Mr. CONNINGTON: The witness said fourteen days.

4730. DEPUTY-PRESIDENT: He said both.

4731. WITNESS: I do not think in that case it would. I think it is the fourteen days. I do not think they give a record of those who do not go before our own doctor. These are those who went before our own doctor.

4732. MR. CONNINGTON: These are the cases certified to by your own doctor?—These are all with over three days' absence. You will see there that they are off for five days, eight, and thirteen days.

4733. DEPUTY-PRESIDENT: That means that your list is not confined to men who have been examined by the Railway doctor?—That is right.

4734. This list discloses all men who have been absent for more than three days?—Yes.

4735. MR. CONNINGTON: With regard to the materials used, I notice that the quantity of lead used through the year was 15 tons?—Yes. I might state that this is only for the metropolitan division. There are what we call four different divisions. There is the western, the northern, and the southern. This material has only been used in the metropolitan division.

4736. DEPUTY-PRESIDENT: And you speak with regard to the health of the men associated with the metropolitan shop only?—Yes, or the metropolitan division. Our division runs from here to Goulburn, and from here to Bathurst, Nowra, and Gosford. We cover that area with our men.

4737. How many men would be employed outside of your division?—A very small number. I think it would probably run from ten to twelve at each place. There may be a few more at Newcastle; but there are not even that number at the present time. There are only about seven or eight now.

4738. How many men are there altogether associated with permanent-way work, and not under your control as foreman of the metropolitan district?—I could not say.

4739. Would there be more than forty?—No, I do not think so. I think we have as many men here in the metropolitan division as they have in the other three divisions altogether.

4740. MR. CONNINGTON: The men under your charge would be men who paint the small stations along the route?—Yes.

4741. There is very little indoor work done by those men?—There is not a great deal. There is more outside work. There are a lot of fences and that sort of thing to do. They are not so confined as they probably would be about the city.

4742. I notice that on your staff you have forty-one temporary hands, six permanent hands, and yourself?—That is not me at all. There is a signwriter there in addition.

4743. That is forty-eight men altogether, forty-one of whom are on the temporary staff?—Yes.

4744. Out of the forty-one how many of them have been there for twelve months?—There may be perhaps three or four new hands out of those who have been taken on, but I would not be certain about that.

4745. How many would be there for two years?—Most of them. Some of them have been there for over twenty odd years.

4746. DEPUTY-PRESIDENT: As temporary hands?—Yes. There are two men in the Department now, both 60 years of age, who have been there for twenty-five years odd. They have never been permanent.

4747. Is there any indoor work done in the paint shop of the Permanent-way Department?—All the inside of station buildings and all the Government offices.

4748. But what is done in the paint shop itself?—Practically nil, you might say. It is only small work, signwriting and such things as lamps,

tricycles, and odd things like that. Most of our work is on the station buildings.

4749. You have not specified in that table what is the consumption of dry white-lead?—We do not use it.

4750. You do not use it at all?—No.

4751. Not even for stopping?—No.

(Witness retired.)

WILLIAM JOSEPH HAYWARD, sworn, examined as under:—

4752. DEPUTY-PRESIDENT: What is your occupation?—Principal time-keeper, carriage and waggon department, Eveleigh.

4753. How long have you occupied that position?—A little over twelve months.

4754. Were you associated with the work of time-keeping before you were appointed to that position?—Yes; I have been timekeeper for a good number of years.

4755. But you have not been the principal timekeeper except during the past twelve months?—I have been principal timekeeper, but not at Eveleigh. I was principal timekeeper at Bathurst, Harden, and at Picton. Picton, of course, is a very small place.

4756. How long have you been in Sydney keeping time?—Just a little over twelve months. I came here first of all as costing clerk, and was transferred as principal timekeeper a few months after that.

4757. As principal timekeeper of the carriage and waggon department, can you speak with reference to the time off ill of the men who are employed in that department as painters?—Yes.

4758. And can you compare the time occupied by the painters with the time occupied by other groups of employees according to occupations?—Yes. I have not had much time to pick it out, but I took one of the other trades. I took the carriage-builders, the carriage-builders' assistants and their apprentices, and the number of cases due to sickness. The average number of men employed from the 1st July, 1920, to the 30th June, 1921, was: Carriage-builders, 233; carriage-builders' assistants, 31; apprentices to carriage-builders, 71; that is a total of 335.

4759. The carriage-builders' assistants would be labourers, I take it?—They are practically labourers, but they are classified as carriage-builders' assistants. The time off, excluding Saturdays, through sickness, was 1,255 days.

4760. What does that average per man?—That averages 3·746 days per man. Then we had men off duty through injuries sustained or alleged to have been sustained while they were off duty. I do not know whether you want that or not?

4761. Yes, let us have them all?—That was 139 days, or 415 days per man. The total, including both, is 1,394 days, or an average of—

4762. Mr. CONNINGTON: Have you got the accidents which occurred in working time?—No, because that is all paid for and is not put down as time lost.

4763. You have given us the accidents in their own time?—Yes. If they are injured while on duty the Department pays for that time, and it is not then considered as time lost.

4764. DEPUTY-PRESIDENT: The witness is giving us the total loss of time lost in the aggregate and per man from remunerative service.

4765. WITNESS: The total time off duty, excluding Sundays, through sickness and injuries not considered sustained whilst on duty, was 1,394 days,

or an average of 4.161 days per man. That is for the year ending 30th June last. I will now give you that information with regard to the painters, the painters' assistants, and apprentices.

4766. DEPUTY-PRESIDENT: How many are there?—There are 178 painters, one paint-mixer, fifty-eight painters' assistants, and twelve apprentice painters, making a total of 249. The total time off through sickness for that year, excluding Sundays, was 1,293 days, or an average of 5.193 days per man. The total time off duty through injuries, not considered sustained whilst on duty, was 262 days, or 1.052 days per man. The total time off duty from both causes was 1,555 days, or an average of 6.245 days per man. Those figures represent cases in which the men submitted medical certificates. Those are the only cases we can safely say are due to illness. I do not know whether it will be of any use to you, but I have here a list of the names and the allowances. You will see that in a very few cases there is a query mark as to the illness. In a case like that the medical certificate did not state the nature of the illness, but would simply state that so and so, whoever it might be, was attended to by a medical officer, and that he was unable to attend to his occupation. It did not state what he was suffering from.

4767. Have you been able to indicate to what extent association with lead might have affected the health of the painter employed?—No. I think I noticed two cases in the certificates in which the sickness was due to lead-colic in one case and to colic in the other.

4768. There appear to be three cases due to colic?—Yes. If a man was off on the 1st July I have just shown a dash and the time off duty to the 30th June. Every certificate that has been supplied by the men is included on that list. After three days a certificate is produced, and in some cases after an absence of a day or two days a medical certificate may be produced. In every case it is shown on that list. I have a tabulated statement here, in which I show the number of cases due to sickness. There were forty-seven car-builders—of course in that case it may be that one man may have been sick on two occasions, and in that event he would be counted as two—there were forty-seven car-builders, seventeen assistant car-builders, and fifteen apprentices.

4769. Who have been sick during the twelve months ending 30th June last?—Yes, the total is seventy-nine. I then took the percentage of cases to the average number employed—car-builders, .202; car-builders' assistants, .458; apprentices, .211.

4770. The ratio is to the days worked?—No, to the total number of employed. If there were forty-seven car-builders employed—

4771. Is not there a fallacy in that? If the same man can be repeated twice on one side of the ratio and only once on the other side, the proportion is not exact, is it?—No, the proportion would not be exact in that case.

4772. Could not you take the days off to days worked? You would then get exactly the proportion. For instance, there were 355 carriage-builders of all classes; they have worked so many shifts in the year, and the total number of shifts would be something in hundreds of thousands; the days off of all classes would represent between 100 and 200. In that way you would get the ratio of one to the other?—Yes.

4773. And you could then derive the same ratio in connection with the painting trade, and we could compare the two?—Yes.

4774. However, you give us what you have got there?—I took the same particulars for painters, painters' labourers, and apprentices. There were sixty painters, twenty-two painters' labourers, and three apprentices; a total of eighty-five. The absences were: painters, .393; painters' labourers, .379; apprentices, .250.

4775. Have you taken the matter further than that?—No. I had only a limited time from Wednesday at dinner-time until to-day to go into the matter.

4776. We appreciate the effort you have made to assist us. Will you work out the percentage on the lines I have just suggested?—Yes.

4777. Mr. CONNINGTON: You deal with carriage-builders?—Yes.

4778. And you compare them with painters?—Yes.

4779. Amongst the carriage-builders should you include the carriage-painters?—No; I am not including them. The painters are always classified as painters, the carriage-painter is a painter.

4780. They are both in the one union; you know that—the carriage-builder and the carriage-painter?—We treat them by their classification. If a man is a carriage-painter we call him a painter.

4781. Your figures deal with carriage-builders and carriage-painters?—Yes.

4782. Not the house-painter?—No, just the carriage-painters.

4783. Those are two classes of men working in the same shop?—Not in the same shop, but in the Department.

4784. They are on the one job, so to speak?—Yes, one is painting a carriage and the other would be repairing or making it, as the case might be.

4785. And the effect of your figuring seems to show that the painter's time off for sickness in working hours is about a third more than the builder's?—Yes. The figures were—car-builders 3·746 as against painters 5·193.

4786. Then it is more than a third; it is about 60 per cent. more time?—

• That would be about it.

4787. That is, about 60 per cent. more time is lost by the painters than by the builders?—According to the figures that I have got.

4788. Those figures are approximately correct?—Yes.

4789. The carriage-painter loses 60 per cent. more time than the carriage-builder—

4790. DEPUTY-PRESIDENT: How do you derive the percentage?

4791. Mr. CONNINGTON: It is 3·746 as against 5·193.

4792. DEPUTY-PRESIDENT: It is nearer 40 than 60 per cent., is it not?

4793. Mr. ROUTLEY: It is a little over a third.

4794. DEPUTY-PRESIDENT: It is under 40 per cent. I do not understand why you are distinguishing the painter from the painters' assistant. I do not want to interfere with you, but the painters' assistant is the man who does the rubbing-down.

4795. Mr. CONNINGTON: Perhaps I have not made myself clear. I am taking the carriage-builders as a class.

4796. DEPUTY-PRESIDENT: Why not take the carriage-builder, the carriage-builders' assistant, and the apprentice as all in a class?

4797. Mr. CONNINGTON: That is what I am doing.

4798. DEPUTY-PRESIDENT: Then you are on the wrong figures. The figures are 4·161 days per man and 6·245 days per man.

4799. Mr. CONNINGTON: That is the figure which includes the time lost by the employee for accidents or sickness.

4800. DEPUTY-PRESIDENT: Then cut the accidents out.

4801. Mr. CONNINGTON: Then it is 3·746 as compared with 5·193. In other words it is roughly three and three-quarters as against five and a fifth. I see that that is something under 50 per cent.

4802. With regard to the carriage builders they use, amongst other things, some dry lead for fillings?—I am not aware of that. I simply keep the time of the men.

4803. In selecting this information you did the best you could to give a fair test?—Yes, I took our records which show the certificates furnished by every man, and I have handed the list to the President.

4804. Do you know whether it is a fact that the painters and the assistants are continually changing in that department?—No.

4804½. You have given us the numbers?—Yes, and I have taken the average.

4805. I am informed that it is a fact, and I want to know whether you are aware of it, that the painters and assistants in the industry are continually changing in that industry?—Not to my knowledge; they do not change very much. Speaking from memory, as far as I can recollect, the changes are not very frequent at all in the shop.

4806. Not with regard to the labourers?—The labourers would be fairly frequent, but not the painters.

4807. I intended to ask you about the labourers?—Yes, we have frequent changes in the labourers. A man will take on a labourer's job and ask for something else afterwards. From memory it is fairly frequent.

4808. We are right in taking this view, that so far as the labourers are concerned, it is a frequent thing for them to change their occupation?—Yes.

4809. And to be asking for a change?—I do not deal with the applications for a change, and I do not know.

4810. If that were so, your average would be a little more unfavourable from our point of view than would otherwise be the case. That is to say, if men are continually changing, and yet this is the quantum of sickness, I think it may be reasonably assumed that it would be greater if the men were not changing about——

4811. DEPUTY-PRESIDENT: Does that follow? They are not changing their occupation; they are only changing their employer. It is not the employer who causes them sickness, but it is the occupation. If the Railway Commissioner used the evil eye upon them, then a change of occupation would be a material matter.

4812. Mr. CONNINGTON: I am not making myself quite clear. I meant change in their occupation.

4813. DEPUTY-PRESIDENT: Does a carriage-painter change his occupation when he leaves the railway service? The witness cannot tell us anything about that.

4815. Is it a fact that the labourers are continually changing their employ?—I would not say they are continually changing.

4816. Well, they are frequently changing?—I have seen a lot of occasions where painters labourers have changed.

4817. What we want to get at is this: does changing mean changing to another class of job?—Yes; but I do not think it is so frequent. I am speaking from memory, and I have a lot of stuff and all sorts of work to do. If I have to come down again with the information that the President wants I can get these particulars for you.

4818. DEPUTY-PRESIDENT: That is, you change the painters labourer from one part of the carriage and waggon shop to another portion of the carriage and waggon shop?—Yes; and he may change from a painters' labourer to an ordinary labourer.

4819. Mr. CONNINGTON: It is on the change of occupation that I base my question. A mere change of employer could not affect the position, but if he changes his occupation altogether, then the figures would appear to show greater soundness than if we were dealing with the same set of figures all the time.

4820. This statement of yours contains the details, giving the names of the men, their occupation, and the nature of their illness?—Where stated.

4821. And the time away from the station?—Yes.

4822. As a matter of fact, these are the details of the evidence you have given us?—Yes, I have summarised these details.

4823. This shows absences as low as one or two days?—When the men supply a certificate. There is no compulsion to supply a certificate under three days, but in some cases you will find that a certificate was furnished for one day or two days, as the case may be.

4824. Would it be fairer to say this: that excepting in those few instances this represents the cases of men who had three days off or more?—Yes.

4825. It just happens that one or two men took the precaution to get an outside certificate, and you found that with the papers?—Yes; and we recorded those.

4826. Outside of those, can I take it that there are cases not entered on the list of men who have lost one day and two days?—Yes. The practice is, if a man does not come to work in the morning the foreman or assistant foreman books him as absent. If he comes next day he may say he was sick, and if the foreman is satisfied that he was sick he will allow him to start work. Our records then simply show that he was absent on that day. Such a case as that would not be included on that list, because we would not know anything more about it.

4827. DEPUTY-PRESIDENT: You regard all time off of less than three days duration as time taken off by him with the foreman's permission, for reasons that are good as between him and the foreman?—Not necessarily. In some cases a man will ask for a day's leave of absence, or two days' leave of absence before he goes. I would not get a record of that. I simply took a record of men off through sickness.

4828. Mr. CONNINGTON: What have you got in your book;—can you work down to one day?—Yes. Do you mean for all causes?

4828½. Yes, for all causes?—Yes, I can get that. It will take a good deal of time to get it out, but we can get it. For instance, if a man does not work on a day, we have a record of that day. If he only loses half an hour we have a record of that half hour, because he is not paid for it. We have the whole record, but to pick it out for twelve months will take considerable time. From the telephone message which I received on the Wednesday I thought the only information required was with regard to sickness.

4829. DEPUTY-PRESIDENT: The question is how much obligation of this particular kind ought to be cast upon these gentlemen, who no doubt have their hands quite full enough under ordinary circumstances.

4830. Mr. CONNINGTON: I can see that, and I know after all that the Board cannot measure the thing to the last ounce. That cannot possibly be done.

4831. DEPUTY-PRESIDENT: Do we need to go past that?

4832. Mr. CONNINGTON: I will say in my address to the Board that at least we know that the average of the men following the painting trade is so much. The actual is not less than that; probably it is more, but how much more is a matter for the Board to decide.

4833. DEPUTY-PRESIDENT: The same consideration applies to the carriage builders.

4834. Mr. CONNINGTON: Yes.

4835. DEPUTY-PRESIDENT: So you can confine yourself to the three days. The time lost in the three days is, in the case of painters, greater

than it is in the case of the carriage builders. I think now you ought to look at the medical causes. Perhaps the witness cannot throw any light on those causes.

4836. Mr. CONNINGTON: With regard to the causes assigned, are you in a position to state which of them might be suggested to have some bearing on the work that they are doing, or that the work they are doing is in any way responsible for it?—No.

4837. You do not profess to have any medical knowledge?—No. I simply put down the complaints, but I do not know what they are when I am writing them down.

4838. Mr. CONNINGTON: It may be necessary later on to go through this list of sicknesses.

4839. DEPUTY-PRESIDENT: You may use that paper as a help in cross-examining some of the medical witnesses that will be called.

4840. Mr. CONNINGTON: All you know is that that is what appears on the certificate?—Yes. Of course, it is just possible we may have one of the complaints spelt incorrectly, because some of the doctors do not write too clearly, and we have to make the best we can of them.

4841. Mr. CONNINGTON: As long as it is recorded that this only applies to men who have had over three days, that is all I want. I do not know what view you will take with regard to the others.

4842. DEPUTY-PRESIDENT: The view I take it that it might be unfair to ask the Railway Commissioner to go to the pains and expense of extracting the whole of the information with regard to absenteeism from his books for the purposes of this inquiry.

4843. Mr. CONNINGTON: I feel so, too. There must be a limit to our fishing excursion.

4844. Mr. MANNING: In arriving at these averages per man, you start off with the number of days?—Yes.

4845. And you get the sum total of the days which were lost?—Yes.

4846. Then you divide that by the number of men?—The average number of men employed.

4847. And from that you say that the result indicates the number of days lost by each man?—Per man per year.

4848. That is spread over the whole list of employees from whatever cause they are absent ———

4849. Supposing you want to find out how much time lost is attributable to any one particular cause, you would have to make a much closer investigation?—Much. You would have to go right through the various complaints and take out the number of days lost on that complaint, and then you would get the average.

4850. And you know that some illnesses cause a man to be absent for a very much longer period of time than other illnesses?—Exactly. In one case a painter's labourer suffered from tuberculosis for 263 days. That had to be averaged up.

4851. That makes a substantial difference to the average?—Yes. That is one case I noticed there of one man.

4852. I take it from your recognition of that fact, which was really what I wanted to lead up to, that you would regard this result as absolutely useless to indicate the number of days that a man was absent for any particular illness?—Yes; the average would be no good there.

4853. That is your experience from going through the records?—Yes.

4854. DEPUTY-PRESIDENT: Were you curious enough to make your calculations after excluding the man with 263 days of absence?—No; I did not have the time.

4855. Mr. CONNINGTON: That is a disease which I will endeavour to connect with the painting industry. I will have something here on that later.

4856. DEPUTY-PRESIDENT: I think it will be advisable for you to see what figure can be derived from the list after that one very exceptional case has been excluded from it.

4857. Mr. MANNING: I only modelled my cross-examination on what has taken place. If that were done, then I should pursue my cross-examination very much further, perhaps. But I will wait until it is done before I take up time unnecessarily, because I have the witness's admission that the statement is of no use for the particular purpose Mr. Connington is getting at.

4858. DEPUTY-PRESIDENT: He said it was of no use for the purpose of determining what was the causative value of any particular illness.

4859. Mr. MANNING: Altogether it would be useless as indicating the number of days a person was absent for any particular illness.

4860. DEPUTY-PRESIDENT: Could the witness now give us the average after excluding the man with that very long absence?

4861. Mr. MANNING: If that is to be done, I can show by a few questions that that will be time wasted, because I am sure the witness will agree with me as to another position I will put to him in the event of that happening. Of course, I only put my question to him on the evidence he actually gave. I claim that this method of examining figures leads one to the most erroneous conclusions. You must have your premises correct before you can rely upon anything.

4862. DEPUTY-PRESIDENT: If the ingestion of lead makes a man unable to resist illness and disease to the same extent as a man who is not absorbing lead—assuming that that proposition has substance—then the general illnesses of any particular body of men who are subject to exposure to lead will be greater than the general illnesses of a body of men who are not subjected to that exposure.

4863. Mr. MANNING: Yes, but that is dependent on two assumptions; one is that the man is continually working in the paint shop, and the other that he is continually absorbing the lead.

4864. DEPUTY-PRESIDENT: No, the only assumption that is made is that the man is associated with the trade of a painter. You must admit that, surely.

4865. Mr. MANNING: No, not in the very least, because this witness will admit, as all the other witnesses would admit, that there are constant changes being made with the people who are employed in the painting shop.

4866. DEPUTY-PRESIDENT: Changes of employer?

4867. Mr. MANNING: It includes all employees in the shop?

4868. WITNESS: Yes.

4869. Mr. MANNING: And that would include a good many more casuals than regulars?—No; we do not have any casuals in ours. There are a few temporary men.

4870. Mr. MANNING: It would include their figures as well as the others?—Exactly.

4871. There would be interchanges, men working in the——?—There is not much interchange for a painter.

4872. But there is some?—There is a painters' classification and a painter does not often revert to a labourer. If I had to get that information in regard to the painters I would also be able to take the time of the painters who have been changed, too.

4873. Mr. MANNING: At any rate, Mr. Deputy-President, I would not think it worth while at the present stage to contest it, unless it is developed further.

4874. DEPUTY-PRESIDENT: We can put things on a sound statistical basis by comparing the painters with the whole of the employees in the carriage and waggon shop, as we did with the general statistics of the population. We will eventually, in the course of this inquiry, be comparing the sickness of painters with the sickness of the whole population, including the painters, thus doing, in a small way, what we will do on a large scale eventually, before the end of this inquiry, so I would ask the witness to reconstruct his figures and to derive the days lost for the whole of the employees in the carriage and waggon department—building and painting combined. There may be other classes besides those, and the Board wants all of those classes. We want them to derive the days lost for the painters, painters' assistants, and painters' apprentices, and a true comparison can be made between the whole community including painters, and painters as excluded from that community.

4875. Mr. MANNING: I will deal with that question when it arises.

4876. DEPUTY-PRESIDENT: Then we will have men with 240 days on both sides of the scale.

4877. Mr. MANNING: I will confine myself just now to what has so far taken place.

4878. Mr. CONNINGTON: From the standpoint of comparison one man has been off 236 days, and you have overlooked the fact that on the other sheet a man has been off 263 days.

4879. DEPUTY-PRESIDENT: What is the illness of the man with the 263 days?

4880. Mr. CONNINGTON: Bronchitis in the one case and tuberculosis in the other case. But I mean as far as big figures are concerned, having an effect on the comparative position, the thing is equalised by the discovery of a man with a similar or larger number of days on the other sheet.

4881. DEPUTY-PRESIDENT: I did not draw a comparison.

4882. Mr. CONNINGTON: When you suggested 236, you gave rise to the argument that the proportion was out of plumb due to this special cause. Had we known that on the other side of the sheet there were 263 days the comparison would have been as at first.

4883. DEPUTY-PRESIDENT: The two unfortunate incidents, one being on one side and the other on the other side of the line, are not going to help very much. They probably might falsify both sets of figures.

4884. Mr. CONNINGTON: As against the rest of the community, but not as against each other, and the position apparently is the same for those two; but as to the others they throw them out of gear.

4885. DEPUTY-PRESIDENT: We will have them in comparison with proper weights if the witness makes a computation along the lines I have indicated. We will get the sickness of the whole community of the carriage and waggon shops, and the sickness of the painters to compare with the community to which they belong.

4886. Mr. CONNINGTON: The best you will get will be a rough average. The true average would be where you trace a given number, say, from, one to fifty, calculating in each case the number of days that they had been working.

4887. DEPUTY-PRESIDENT: Do you mean one man to fifty men?

4888. Mr. CONNINGTON: Yes. While what you suggest can be criticised, I cannot suggest any improvement upon it because the circumstances are, according to the witness, always changing. The real average would be to follow fifty men—

4889. DEPUTY-PRESIDENT: I am afraid that would lead you further astray. If you are going to deal with a selected class you must deal with them at random. If you select them because they are permanent men you will have the calculations falsified. The Railway Commissioners probably make those men permanent because they are not likely to fail physically or mentally.

4890. MR. CONNINGTON: Your system is the best which can be suggested under the circumstances.

4891. WITNESS: In getting the information which you require, do you want me to give names?

4892. DEPUTY-PRESIDENT: No, just as you have done it, only do not distinguish the carriage-builder as one class. Take the whole of the employees in the carriage and waggon building department. Take the sickness for the whole of the men whose time you keep. Then separate from that community the men who are painters, painters' assistants, and painters' apprentices, and derive figures with regard to their sickness. Then we will be able to compare the sickness of the painters as a group with that of the whole of the employees including painters?—I will just give you the total days lost.

4893. Just as you have tendered the information here?—Exactly.

4894. Only your separation into classes will have to be different. One class will have the whole of the persons for whom you keep time, and the other class will be the painters?—Very well. When do you want that information.

4895. We will be sitting again on Tuesday. Can you let us have it then?—To-morrow is the end of the pay period, and we have to compile the sheets. I will be able to let you have it this day week, if you will be sitting then.

4896. DEPUTY-PRESIDENT: Very well. Mr. Woodham will communicate with you and see what progress you have made towards the end of the week.

(Witness retired.)

JOHN FLANAGAN, sworn, examined by Mr. CONNINGTON:—

4897. What is your occupation?—I am secretary of the Coach-makers' Society.

4898. How long have you held that position?—Two years.

4899. Prior to taking over the duty of secretary, what business did you follow?—I followed the occupation of a carriage and coach painter. I was employed at the Eveleigh paint shops. I resigned from the Eveleigh shop to take over my present position.

4900. How long prior to your resignation had you been at the Eveleigh workshops?—I commenced in 1912 and worked continuously until 1917, when I was off for some time.

4901. Then you re-started, and left at what time?—About March, 1919.

4902. For about eight years altogether?—No, not that long. I was out about fifteen months from the Strike before I got back.

4903. From the time you started until you finished it was about eight years?—Yes, that was the period.

4904. You are a carriage-painter?—I am a coach-painter, but worked for that period as a carriage-painter.

4905. DEPUTY-PRESIDENT: What is the difference between the two?—A coach-painter is a man who does vehicles running on roads, and a carriage-painter is one who does one running on rails.

4906. That is an artificial distinction drawn by the Industrial Court, is it not?—That is all.

4907. There is really no difference in the work as between the two?—No. I use the same materials and in the same way.

4908. Mr. CONNINGTON: With regard to the question of health, do you enjoy good health?—No, I never enjoyed it in the painting.

4909. And during the eight years you were painting?—I enjoyed very bad health for twelve months prior to the Strike; practically from 1915 to 1917 I had very bad health.

4910. Did you ever see the Railway Commissioners' doctor?—No, I was just married at the time and was not bad enough to lose time like many hundreds. I saw many doctors, but did not get much satisfaction. I got satisfaction at the finish through a German doctor. If you want to know all about the different complaints I was supposed to have, according to the different doctors, I will tell you.

4911. I suppose the doctors found you had various complaints, and at the finish some one said you had lead-poisoning?—The doctor at the finish said I was leaded in the nerves leading to the lungs.

4912. Before getting that certificate you had visited, how many doctors?—The lodge doctor, hospital doctors, Dr. Flynn, and Dr. Bernardi—

4913. Mr. MANNING: Who said you had lead on the nerves?—Dr. Woolf, of Elizabeth-street—I think Moffatt Chambers.

4914. Mr. CONNINGTON: However, you visited many doctors. What did they diagnose your case as?—The lodge doctor said it was pleurisy. I did not know the name of the doctor at the casualty ward, but he said I had muscular rheumatism. He said he would put me on to a specialty doctor—Dr. S. A. Smith. The next day I was the only patient for lung trouble, and the doctor had about ten students with him, and they gave me an afternoon's overhauling. They were looking for pleuric friction; I remember that, because the doctor was instructing the students and asking them could they find pleuric friction. I was curious enough to look at the book, and in it was entered, "Nil to heart or chest," but there were some Latin words which beat me. I took a prescription to the dispensary.

4915. Then you went at last to Dr. Bernardi?—To Dr. Woolfe the last.

4916. How did he diagnose your case?—As lead on the nerves leading to the lungs; and he treated me successfully, I believe.

4917. While under his treatment did you continue working?—Yes, all the time.

4918. How did you manage to carry out your job if you were suffering from lead in this bad form?—I reported the matter to the foreman and was advised by the sub-foreman to get away to Bathurst or somewhere in the country for a change.

4919. Who was that?—Mr. Stainton. I misunderstood your question. I thought you asked me who said I should seek a change. I reported to Mr. Forbes, who was the foreman at the time, and he consented to me going into the open air to work stencilling engines at the other side of the line. I was at that for eight months.

4920. And after that?—The Strike came along and I was out.

4921. Where did Mr. Stainton come in?—He said he could see I was failing, and suggested asking for a transfer to some country depot.

4922. Did you make it clear to Stainton you were suffering from lead-poisoning?—Every one knew that.

4923. Who knew it?—Every one in the shop knew it was lead. I told him what Dr. Woolfe said.

4924. Did you make application for a country job?—No, I wanted to remain in Sydney if possible.

4925. Speaking of the trade generally, in your opinion is it a healthy trade?—In my opinion, no; it is decidedly unhealthy.

4926. Apart from your own experience, have you anything to relate with regard to other people?—Yes. I think my memory is quite clear on many cases of men who suffered from lead, and men who have died.

4927. Some of them in the railway service?—Yes, in the service of the Commissioners. Three members of my society died, as a good estimate, between 1907 and 1917, from lead-poisoning. J. Gibson was one, Hewitt was another, and Wilkie was another.

4928. Those are the cases, you remember, of men who have died?—Yes.

4929. Do you know of any other cases of men dying in the Railway service?—There was a man named Madigan, who was retired from the Tramway paint-shop as medically unfit, and he died in Prince Alfred Hospital.

4930. When was this?—I could not give you the date, but his brother told me yesterday he is prepared, if the Board wishes to call him, to come along and give full particulars. He was a member of the society.

4931. You are speaking as secretary now?—Yes, and yesterday I went out to Madigan to refresh my memory, and he said that he would give evidence if called.

4932. DEPUTY-PRESIDENT: When did Madigan, the painter, die?—Some years ago, but I could not give you the definite date. I suppose it was ten years ago.

4933. Mr. CONNINGTON: The other men you have spoken of, when did they die?—Between 1907 and 1917. I do not want to stick to dates; I am making a general statement.

4934. If you give us the names of all the men who have died, from your recollection——?—That is all I can remember, but there may have been many I did not know.

4935. Apart from these deaths, you say the trade is unhealthy. Do you know of many cases of men who have suffered from lead-poisoning while in the service of the Commissioner?—Yes.

4936. Can you give me the names of those men?—F. Fenning——

4937. Mr. MANNING: I suggest it is useless to go on with this sort of thing. What does the witness know about lead-poisoning, or why they were away from their work? He is going on now to tell the Board that people were away from their work on account of lead-poisoning——

4938. DEPUTY-PRESIDENT: In his opinion, yes.

4939. Mr. MANNING: Well, what is the use of it?

4940. DEPUTY-PRESIDENT: I think the evidence is comparable with the evidence Mr. Connington offered to us at the beginning. It is evidence to the effect that the union, or the organisation to which the operatives belong, believe that the trade is unhealthy, and they believe a number of men have suffered from the effects of association with lead. It does not carry us very far, as we said at the beginning, but it is evidence of their attitude to the question which is now being discussed, and of their attitude to the trade.

4941. Mr. CONNINGTON: Suppose I apply that form of reasoning to the evidence we have had here to-day? There is a list of cases put in, a number of names are given showing absences from work. All we can say is the evidence given by that witness was that some doctor certified that neuritis or something else, say, asthma or tuberculosis——

4942. DEPUTY-PRESIDENT: You want to know what distinction there is between that and your case? There is this distinction: that record is kept in the course of official duties, and is part of a system which exists independent of this inquiry. Your record was compiled for the purposes of this inquiry. There is the distinction.

4943. Mr. CONNINGTON: This is the point I make: we have a list of 120 men who say, "We suffer from lead-poisoning, and our doctors have told us——"

4944. DEPUTY-PRESIDENT: Do not re-trace the thing without stating all the facts. Your medical certificates are problematical, or otherwise. Potentially the medical certificates are attached to the documents put in by Mr. Hayward.

4945. Mr. CONNINGTON: With that distinction, there is no difference in the class of evidence.

4946. DEPUTY-PRESIDENT: That is a material distinction, and apart from that, Mr. Hayward's record is kept apart from this inquiry, and not *ad hoc* or for the purpose of proving any specific thing at all. It is kept independently, not for the purpose of demonstrating the health of the employees, but merely for the purpose of recording the wage rights of the employees as between the Commissioner and themselves. You see, your record was brought into existence for the purpose of demonstrating the position of the health of the employees in connection with the purposes of this inquiry.

4947. Mr. CONNINGTON: I am not sure of that. I am informed that this was done before they knew of this inquiry.

4948. DEPUTY-PRESIDENT: Well, for the purpose of demonstrating the position of health to Parliament or to some agents in Parliament. The other record is kept for no such purpose at all, but in the process of time-keeping in order to determine what wage a man is entitled to.

4949. Mr. CONNINGTON: I want to bring the difference between us a little closer. If we had attached to our list the medical certificates in each case—

4950. DEPUTY-PRESIDENT: One distinction would be removed, and then there would be only the distinction between the purpose of your record and the purpose of the Railway record. You are a party; the Commissioner is not. Your purpose in making inquiry was to meet the needs of an inquiring authority, such as this Board. The Commissioners' record was compiled merely for the purpose of preserving the evidence which existed as to the wage rights and character of the employees in the service.

4951. Mr. CONNINGTON: The difference between an interested person and uninterested person.

4952. DEPUTY-PRESIDENT: There is that difference, and the further difference that the Railway Commissioners' purpose was not to ascertain the health of the employees at all, but to ascertain their value as employees and their rights to wages as employees.

4953. Mr. CONNINGTON: When I argued that mine was comparable with that, I had in mind that the certificate was there in each case.

4954. DEPUTY-PRESIDENT: I have no objection to your raising the point. I think it is as well to clear our minds upon it.

4955. Mr. CONNINGTON: I have in mind as well the knowledge that in each of these cases the man has said, "I have been examined by Dr. Brown," or anyone else. I am of opinion that that man can say Dr. Brown, Dr. Smith, or Dr. Jones has given him a certificate so that the certificate can be produced. If it cannot, I am not going to ask you to take the men's word.

4956. DEPUTY-PRESIDENT: Before we leave the question of difference let me add this as a third point of distinction. Mr. Hayward did not appear to tell us anything about lead, but something about health. Your record is compiled for the purpose of telling us about lead only. It is not so important as the other distinction, but it is another distinction.

4957. Mr. CONNINGTON: This objection Mr. Manning puts to the evidence of the witness means this: if the Board can get evidence in another way, I would like Mr. Manning to suggest how it can be done. This is a public inquiry, and we are dealing with a subject that the Government of the country has thought fit to entrust to the Board—

4958. DEPUTY-PRESIDENT: You are going to find the same difficulties in examining this witness as you found in examining Mr. O'Brien. Several

obstacles will, no doubt, be put in your way. There is no reason at all to be suggested by your witness or yourself that Mr. Manning will be otherwise than fair. It is perfectly right he should insist upon evidence being given in such a way as to be of value to the Board. Mr. O'Brien, after some difficulty, was able to give us the effect of his observations in the trade. This witness can give the effect of his observations over a series of years; but he must not get too wide of the mark. He is a very emphatic witness, and he knows the majority of the doctors who examined him were wrong. But he has had the opportunity to observe his own condition of health over a long association with paints and painting material, and he has no doubt had the opportunity to observe the health and attitude to their work of a considerable number of men who are in the same line of trade. He can give us his evidence without misleading us, so long as he confines himself to the statement of what he has observed.

4959. Mr. CONNINGTON: Our position is simply this: there is no one more anxious than we are to conserve time, and if this evidence is a failure we will not put it in.

4960. DEPUTY-PRESIDENT: There is a great difference between accusing a party of wasting the time of the tribunal, and suggesting the party is importing into the evidence a little more than he ought to do.

4961. Mr. CONNINGTON: I can quite understand the latter, but—

4962. DEPUTY-PRESIDENT: The witness is over-emphatic. He assumed the right to state facts which could never have been known to him as facts. That is the distinction. We do not charge you with wasting time; we are glad to hear you and have your assistance.

4963. Mr. CONNINGTON: We had better let the witness give his evidence in his own way.

4964. DEPUTY-PRESIDENT: The witness ought not to say so emphatically that "X" was ill of lead-poisoning. Let him content himself with saying "X" was ill—simply ill—and if there is any further evidence from any other other source as to the cause of illness, let it be brought. If the witness has observed in the course of a life-long experience that every painter loses a fortnight a year through illness, he does not need to say why that painter loses it; he does not need to say the cause of his ill-health. He will impress us very greatly if he can demonstrate anything of that nature, without assigning the cause for the ill-health.

4965. Mr. CONNINGTON: Have you observed things in relation to the health of the men—?

4966. DEPUTY-PRESIDENT: Do not be harassed yourself. As long as he does not pretend to medical knowledge and assign medical causes, we have no objection to his evidence.

4967. Mr. CONNINGTON: I have heard the evidence of the representatives of firms, and could have stood up and said, "Why do you say it is lead-poisoning?"

4968. DEPUTY-PRESIDENT: The question I put was in each case, had he observed any illness which he could associate with lead? I did not ask him whether he could assign the cause of a man's illness in a definite medical way.

4969. Mr. CONNINGTON: I think when I come to address you and dissect the evidence I will be able to draw attention to evidence that has been given, and that, I hope, will be of more assistance to the Board—

4970. DEPUTY-PRESIDENT: I hope I have not misled you in the way I have conducted the examination. Fortunately, or unfortunately, the evidence has been negative, wholly negative, so far. It has not been a case of assigning a medical cause at all. It has been a case of arguing there has been no sickness at all associated with lead or otherwise. It has not been positive evidence, but negative. If the foreman had said, and the representatives of the

employers had said, that there was reason to believe that a man has suffered from association with lead, they would have stopped at that point.

4971. Mr. CONNINGTON: They have said there is no reason to believe it. After all, one can be as wrong in the matter on the negative as on the positive.

4972. DEPUTY-PRESIDENT: No. If they had alleged they had reason to believe association with lead was harming healthy men we might have gone further and picked out the men supposed to have been harmed, and got medical certificates with regard to them; or we could have called them here to find out exactly what their own experience of health had been.

4973. Mr. CONNINGTON: Now we have a witness who is in the affirmative. If we let him give the names of people as he knows them, the bubble can be burst by someone coming along and saying, "So-and-so never suffered from anything of the sort. He is not a witness who says that a man suffered from so-and-so, and that he does not know the men. He is not making statements no one can check. This is a public inquiry, and he says that Brown, Jones, Smith, and others suffer. These men might be in the service to-day.

4974. DEPUTY-PRESIDENT: He has not been quite so cautious as you are in reporting him. He said, "Jones and Brown have lead-poisoning."

4975. Mr. CONNINGTON: If we find Brown and Jones his evidence can be checked.

4976. DEPUTY-PRESIDENT: Not the four who are dead.

4977. Mr. CONNINGTON: We might even find out something about them.

4978. DEPUTY-PRESIDENT: If you will give full particulars as to them. I will ask the Registrar-General to give death certificates.

4979. Mr. CONNINGTON: Can you give me full particulars of those four cases?—Yes.

4980. You have said that in your opinion the trade is an unhealthy one?—Yes.

4981. You were going to give us the names of the men who in your opinion have suffered from lead-poisoning?—I was going to give you the names of men who told me they had certificates saying they were suffering from lead-poisoning.

4982. Mr. MANNING: Why not get the information from them as you call them?

4983. DEPUTY-PRESIDENT: Some of those men might be identified with the men we have heard of from Dr. O'Reilly.

4984. Mr. MANNING: We can determine that when they are called. If this witness tells Mr. Connington the names of the people, Mr. Connington can get them. If this witness tells all about them, it has to go down in the notes, and when reading through the notes you have to cut all of that out.

4985. Mr. CONNINGTON: We have the names of 120 men, and if the question of funds did not stand in the way——

4986. DEPUTY-PRESIDENT: You see the danger. If these people tell the witness they have suffered from lead-poisoning, what value can be attached to that? Hearsay evidence of any kind is very doubtful; but hearsay evidence as to the condition of a man's health and the cause of it—hearsay evidence upon a topic upon which a man is not well informed—must be ever so much more doubtful than the other kind of evidence. I may believe conscientiously that I am suffering from half a dozen of the plagues of Egypt, and I am allowed so to report myself; but I am allowed to have a little imagination on the subject. But the man who comes to a tribunal and says, "I am suffering from this, that, and the other," is apt to mislead that tribunal.

4987. Mr. CONNINGTON: Is our position this: we are to obtain the names of those men, go around to them, and bring them here to give their evidence? Mr. Manning forces us into that position.

4988. DEPUTY-PRESIDENT: No, that is not your position. What Mr. Manning does is to suggest that the Board will be in danger of deriving incorrect conclusions from hearsay evidence, if it allows itself to take that evidence. The Board is still content to call the evidence and get it directly, as it can be got from the doctors and the men. The question is whether you desire the Board to be informed of the names, so that the Board can subpoena the witnesses, or whether it will suffice for a witness to inform you privately, so that you can call each such witness for yourself. If the Board is put in that position it must be publicly.

4989. Mr. CONNINGTON: The Board may say after this witness is cross-examined, "We would like to hear from those half-dozen men." On the other hand, the Board may feel the thing is too shadowy altogether to take any more notice of it, and the whole thing passes out.

4990. DEPUTY-PRESIDENT: I do not think the Board will look for men who were sick nine years ago, and who are not readily available now. The witness has referred to men who were sick as long ago as twelve years—from 1909 to 1917. Some of them, I take it, were sick as early as 1909.

4991. WITNESS: That was as to the men who died. The three men I mentioned, I said died between 1909 and 1917.

4992. DEPUTY-PRESIDENT: There is no difficulty in connection with the men who died; we can be supplied with their death certificates.

4993. Mr. CONNINGTON: We have to remember this is a public inquiry, affecting the interests of a lot of working-men, and I think the secretary of a union is treated—as they are in Court—as an expert, or a man who can speak with knowledge; and although it may not be acted upon, it will be a guide to the Board or Court in some other direction which may prove useful.

4994. DEPUTY-PRESIDENT: Unfortunately, this is not an Industrial Court. The secretary may be expert in industrial matters, but not in medical matters.

4995. Mr. CONNINGTON: If the Board was anxious to find out conditions in the carrying trade it would naturally go to the secretary of that union and ask him something about it. Then it could use its own judgment as to what it was worth.

4996. DEPUTY-PRESIDENT: That is, in an industrial relation.

4997. Mr. CONNINGTON: If the painting trade is alleged to be unhealthy, the Board might say, "The secretary of the trade ought to know something about it." He sees the men passing in and out—

4998. DEPUTY-PRESIDENT: Let the witness inform us as to who should be called on this question of health. Let him tell us who has been sick in his opinion.

4999. Mr. CONNINGTON: Who has been sick, in your opinion?—I was only speaking of the men who have certificates.

5000. Are they in the employ of the Commissioner now?—Yes.

5001. Can you give us their names?—Walter Carpenter—

5002. DEPUTY-PRESIDENT: What is his address?—I have only put him down as "Eveleigh Shop."

5003. Mr. CONNINGTON: He informs you he has got a certificate?—I asked him did he have one, and he said yes. I have the names of men down here—

5004. [*After witness had read out four names.*] Are those four men at work in the Eveleigh yards to-day?—They were there yesterday.

5005. Have they certificates from doctors that they are leaded?—Yes.

5006. DEPUTY-PRESIDENT: What I do not understand is why they do not receive a certificate from the Railway Medical Officer. Dr. O'Reilly said he never recognised any symptoms of lead-poisoning at all, did he not?

5007. Mr. CONNINGTON: He gave us four instances. I think he has only given the name of one man, Champion.

5008. Did you speak to Champion?—Yes, yesterday.

5009. Dr. O'Reilly spoke of three men altogether; one was a fettler, one a battery mechanic, and one was a painter.

5010. DEPUTY-PRESIDENT: "Champion" was the name mentioned this morning, but that is not identical with the man referred to by the witness.

5011. Mr. CONNINGTON: You say that four men in the service to-day have certificates that they are leaded?—So they informed me yesterday.

5012. You are swearing to that, are you not?—Yes.

5013. One states the medical officer told him——?—He was not better, but the doctor sent him back to work again.

5014. Are there any other cases?—Yes; I know of a case outside. This man has not got a certificate.

5015. Keep to the railway service for the moment?—No; I only took the names of men who had certificates. Men always say if they get leaded. I spoke to fifteen or twenty men during the dinner hour yesterday—forty-two minutes. Those who said they were sick, but had no certificates, I took no notice of.

5016. Did any of the other men say to you that they were leaded?—Yes; but they had no certificates, so I took no further notice of them.

5017. Can you, if necessary, give the names of those men who said they were leaded but had no certificates?—I can give you the names of two who had none.

5018. Who were they?—Steve Daunt and George Keene said they were leaded but did not have certificates.

5019. DEPUTY-PRESIDENT: Perhaps the Railway Medical Officer will review those men who said they were leaded and have them examined in the interest of the Commissioner.

5020. WITNESS: I do not think my members would like that, because my men go out if they are medically unfit.

5021. Mr. MANNING: You cannot have it both ways. They cannot claim to us to be leaded and not to the Commissioners. It is a lot to ask the Board to believe that the men will not admit to the Commissioners that they are leaded, through an irresponsible witness. The witness is irresponsible in the sense that no one can check his evidence.

5022. DEPUTY-PRESIDENT: There the difficulty arises. Your men are prepared to submit to an examination; Mr. Flanagan's are not.

5023. WITNESS: I do not really know if they are not. If I compromise them in the service they might have to go out.

5024. DEPUTY-PRESIDENT: How much is there in it, Mr. Connington. If a man suffers from an industrial disease he is entitled to compensation from the Commissioners until able to resume work. If the Commissioner dismisses a man because he is ill the public ought to hear more of it. I am not going to assume the Commissioners will dismiss a man because he has injured himself as their servant.

5025. Mr. CONNINGTON: What are your grounds for supposing a man may lose his employment if it is known he is leaded?—If he goes to the doctor and the doctor says, "You are medically unfit," he does not go back.

5026. DEPUTY-PRESIDENT: Take your own case: you reported your case to the foreman as leaded. Were you dismissed?—No, and I lost no time.

5027. Well, why should other men be prejudiced if you were not?—They may not be; that is only my opinion.

5028. DEPUTY-PRESIDENT: How much substance, Mr. Connington, do you think there is behind the hesitation of the witness on this matter?

5029. MR. CONNINGTON: I really do not know. I am not going to say that if we do not give full information the Board is going to act on inference wholly.

5030. DEPUTY-PRESIDENT: I am not going to draw any inferences against the witness at all. I am not going to draw any inference from his evidence if he is not prepared to allow it to be checked. His evidence is going to be of no value at all, in my mind.

5031. MR. CONNINGTON: On that particular point, do you mean?

5032. DEPUTY-PRESIDENT: Yes, on that particular point.

5033. MR. CONNINGTON: Do you not like to mention the names of the men?—I thought for the moment it would not be wise for me, as secretary, to have the men subjected to an examination which might put them out of the railway service. My reason for caution is this: the men might not like the idea of doing such a thing. I am not here at the instigation of the union, but simply to assist the Board in whatever I believe to be true.

5034. MR. CONNINGTON: I saw the witness the day before yesterday and asked him was there evidence he would like to give. I think I mentioned to the Deputy-President that we would call this witness.

5035. DEPUTY-PRESIDENT: Yes, I understood your position. We wondered why the union was not represented at the table.

5036. MR. CONNINGTON: I told Mr. Flanagan that, and he said he would have a walk through the yard (which I approved of) so as to make himself acquainted with the position and refresh his mind.

5037. DEPUTY-PRESIDENT: What he did was to take a census of the opinions of the members of his union on the subject of lead-poisoning?

5038. MR. CONNINGTON: That is so.

5039. DEPUTY-PRESIDENT: That is done, and he wishes to give in evidence here the effect of what he was told. There was some objection to your putting in evidence which had been much more carefully prepared—evidence of the same kind. We cannot accept from this witness evidence of a hastily-prepared kind when we were unable to accept from you evidence of a much more carefully-prepared kind.

5040. MR. CONNINGTON: It is without prejudice to my rights. I have these names there and will do all that can honestly be expected of me to satisfy the Board that the evidence should be taken notice of. I will do it with those witnesses simply because if there is a danger to the health of the men through lead and the men think there is—and they do, as far as I know—it is my duty to see there is no obstacle that I can prevent to putting the facts before the Board. I believe in the 120, and if a way can be found that would be satisfactory to the Board for getting the information, I will certainly see we put it before you in that form. It is only for the moment, so to speak, that I accept your ruling—

5041. DEPUTY-PRESIDENT: Why not let this witness prepare a list similar to the list you have prepared with the name of the patient and the name of the doctor, also the nature of the illness upon it? Then we might find names in the doctor's list which are identical with those in your list, and may be able to call a doctor attesting to the condition of health of four or five men from each list.

5042. MR. CONNINGTON: I will try to find out from the witness how much can be done in that way.

5043. DEPUTY-PRESIDENT: We will have no hesitation whatever in calling a doctor who can give us evidence with regard to the supposed incidence of lead-poisoning in four or five persons.

5044. Mr. CONNINGTON: I had in my mind that possibly one doctor might deal with a number of cases and we could perhaps find a way of placing the evidence before you. One doctor might perhaps testify——

5045. DEPUTY-PRESIDENT: Have a list prepared by Mr. Flanagan and combine the two lists, and let us know how many doctors there are who can speak with regard to the health of at least three men.

5046. Mr. CONNINGTON: Can you assist the Board and extend the information by compiling a list of men, with their addresses, who have had their illness certified to as lead-poisoning by doctors?—I will do my best.

5047. Without going into details, what is the view of the men generally as to the industry? Is it, or is it not, regarded as healthy?—No, the men generally do not regard the trade as a healthy one. Many men are anxious to get out of it.

5048. That is, the painting section of the trade?—Yes.

5049. When you say many men are anxious to get out of it, what have you in support of that statement?—Just general conversation during dinner time. I know all these men and have been long associated with them, and I know their failings. I know how they feel towards the trade as regards health.

5050. DEPUTY-PRESIDENT: The witness has observed a general mistrust on the part of his fellow workmen of the trade, insofar as it is likely to affect their health.

5051. Mr. CONNINGTON: That is so. They think it is an unhealthy trade. That is all the witness has said up to now.

5052. DEPUTY-PRESIDENT: Mind you, in every walk of life we play a losing game. There is an aphorism, "Life at its best is but a masterly retreat." We all mistrust our occupations, every single one of us.

5053. Mr. CONNINGTON: I think I can find room to agree that there are some occupations we do not follow——

5054. DEPUTY-PRESIDENT: Those are always the healthy ones.

5055. Mr. CONNINGTON: There are occupations, stated by doctors and others who have studied the question, which are more unhealthy than the average occupation, and the risks in certain directions are much greater than they would be in some other occupation.

5056. You say that the men regard the industry as unhealthy?—Yes. I may say, if I am not wasting time, how I arrive at that opinion and how the conversation would take place. Supposing, for instance, we were all working on a big L.F.M. with twenty-one windows on either side, all being burnt off: no one at dinner time, except they are ravenous men, can eat their dinner.

5057. Can you swear that?—That is a fact. You taste this piece of food, and put it away; perhaps you might take a little bit of meat out and eat it and throw the rest away. The smell of the paint would be coming on to you all the morning, and you would be sand-papering the dust down your neck. In Eveleigh shop there is a gas pipe which goes right down the road, with a small tap sticking up here and there. The painter's assistant, for burning-off, takes a small rubber tube and takes it along the road. You put your lamp on the bottom of the car and start with a square knife, running up. When you have done a square piece to make it easy, all the "drops" and lead is taken out, leaving only whatever lead there is in the ceiling.

5058. Could the Board see that?—Yes, I would like the Board to come along.

5059. DEPUTY-PRESIDENT: The unfortunate men who cannot eat the dinner are the painters' labourers, not the painters?—The painters do this, too. Before 1917 I was in charge of a gang known as "Flanagan's gang." I would have two or three painters and perhaps two or three labourers sent

along to do this burning-off. While it is still hot you sand-paper; the dust goes up your nose—

5060. Is not the rubbing down and sand-papering done by the assistant?—I think the house-painter and the coach-painter is a little bit astray. The house-painter calls his sand-papering rubbing down. We do not. Rubbing down is done with a sponge and pumice stone and water. The sand-papering is done with sand-paper, dry, and the dust flies.

5061. DEPUTY-PRESIDENT: But in each case that mechanical work is done by the labourer?—No, the rubbing down is done by the labourer assisted by the painter. At all times the painter is working, supervising the work of the assistants and doing it himself. When I was charge hand we would take a car, and I had to measure it out so that no man would have more than another and mark it for each man. Each did his certain portion.

5062. Mr. CONNINGTON: Before the Board meets again I will make what computations I can from the lists.

5063. DEPUTY-PRESIDENT: And you will enable the Board to assist you in bringing forward evidence you think is important.

5064. Mr. CONNINGTON: If you will indicate what you think is of value we will do so. I will collate the list and let the Board have it on Tuesday.

5065. WITNESS: I can only go into the railway sheds by permission the day after pay day, or pay day, and that is only for forty-two minutes. Unless the Board can find some way—

5066. DEPUTY-PRESIDENT: We will endeavour to do that, with regard to inquiries the Board desires to have made in the carriage and waggon painting shops, between this and Tuesday.

(At 4 o'clock the Board adjourned until 10 a.m. on Tuesday, the 12th instant.)

EIGHTH SITTING.

TUESDAY, 12 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 2 o'clock p.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. WILLINGTON

MR. ROUTLEY

MR. COOPER.

JOSEPH MUNYARD SHEARMAN, sworn, examined as under:—

5067. DEPUTY-PRESIDENT: What is your position?—Foreman of painters at Cockatoo Island.

5068. You are employed by the Commonwealth Government?—Yes.

5069. Through which of its departments?—Well, it is a hard thing to say. At the present time you can say either the Department of the Navy or the Prime Minister's Department; they have not quite settled it at the present juncture.

5070. How long have you been in your present position?—As foreman, ten years at Cockatoo.

5071. What were you before you were put into the position of foreman?—Previous to that I was leading hand for a matter of about five years.

5072. Does fifteen years cover the whole of your experience?—No; twenty-two years is the whole of my experience in the trade.

5073. But how long were you at Cockatoo?—Fifteen years.

5074. What is your age?—Thirty-eight.

5075. Have you been in any other occupation but that of a painter?—No.

5076. How many men have you had in your charge at Cockatoo Island?—I got some data last night from the Department, which I thought might be of interest to you. This [*handing a document to the Board*] shows the heading of the various questions I put to the accountant, the doctor, the Time Office, and the Stores Department.

5077. You asked the Time Office, and the medical officer, and the accountant, and the Stores Department for information under the following heads:—(1) Number of white-lead poisoning cases on the island for the last eighteen months amongst the painters, and painters and dockers. (2) Number of cases of sickness from other causes on the island for the last eighteen months amongst the same classes. (3) Average number of men engaged in painting on the island for the last eighteen months, indicating painters and painters and dockers. (4) The average number of absentees sick amongst the painters, and painters and dockers. (5) A comparison of painters, and painters and dockers against other trades absent sick. (6) The total weight of paint material used during the last eighteen months—anti-fouling material to be shown separately?—Yes.

5078. Do the other papers that you have with you contain the answers?—Yes.

5079. With regard to the number of white-lead poisoning cases on the island for the last eighteen months?—We had one, a painter and docker.

5080. How did you identify his case?—The Departmental Medical Officer identified that case.

5081. He diagnosed his case as one of lead-poisoning?—Yes.

5082. What was his name?—Charles Black.

5083. Was he diagnosed as suffering from lead-poisoning?—Yes. He returned to work, I think, within the last fortnight. I would have been able to have got you the full details of that, but the time was rather short. If you wish it I can obtain that.

5084. When did he go off?—About four months previous to that.

5085. You did not give me an answer to the question I put to you when you referred to these papers. How many professional painters, and painters and dockers are there employed at Cockatoo Island?—The average for the last eighteen months has been, professional painters sixty-three per day. I might say that during that time we have had no painters working there, with the exception of one, for nine months.

5086. When would the nine months have concluded?—Up to the present time.

5087. For the nine months concluding to-day?—Yes, we have had no painters with the exception of one, a leading hand.

5088. So that the average of sixty-three per day is calculated in respect of what period?—The previous nine months.

5089. The other half of the eighteen months?—Yes, the first half.

5090. How many painters and dockers?—Three hundred and eighty-five per day.

5090A. In respect of which period?—The whole of the eighteen months. Might I go back to that previous question? I am in a little doubt there. Professional painters, sixty-three; the time department have extended that over the full eighteen months.

5091. So that there would have been at least 126 employed per day during the first half of that period?—Yes.

5092. Did you tell us how long Mr. Black had been away?—Roughly, it was four months.

5093. Can you give us the number of cases of sickness from other causes on the island during the eighteen months?—Thirty-nine professional painters, and 163 painters and dockers.

5094. Have you causes assigned for their illnesses?—Influenza, general colds, and gastric trouble.

5095. You have not got them tabulated?—No. There would be no accidents included in that.

5096. Can you tabulate the medical causes for those illnesses?—Yes, that can be done.

5097. Will you make a note to do that?—Yes.

5098. What is the average number of absentees sick?—Professional painters over that period of eighteen months, one.

5099. Per day?—Yes.

5100. Painters and dockers?—Seven per day.

5101. How do you compare the painters and dockers against other trades in connection with absence owing to sickness?—Taking it over the same period, with a rough figure of 3,500 men, we had thirty-nine absentees per day.

5102. That would be 3,500, excluding painters, and painters and dockers?—Yes.

5103. What is the total weight of the paint material used in the same period of eighteen months?—Two hundred and fifty tons. I can give you the various proportions of the different ingredients, if you would like that.

5104. Please let us have those?—White-lead, 50 tons; red-lead, 20 tons; zinc-lead (that is a combination), 20 tons; zinc-white, 10 tons; whiting, 8 tons; red oxide in oil, 12 tons; mill-white, 7 tons.

5105. What is mill-white?—Mill-white is a composition paint which we used in the troopships.

5106. Manufactured from what?—It is a trade mixture, a particular firm's formula, as far as I can gather, and it is made with Barytes and Lithopone. There are no leads in it.

5107. What are the other ingredients you used?—White putty, 10 tons.

5108. No white-lead in that?—No white-lead in that. Red-lead putty, 4 tons. I might mention that that red-lead putty is composed of half red-lead and half white-lead. That is the only one that we judge a red-lead putty. There are other mixtures made, but we do not class them as such. Black putty, a quarter of a ton.

5109. What does the black putty contain?—That is a lime and a tar mixture. Then Scott's cement, $\frac{1}{2}$ ton; there are leads contained in that.

5110. What proportion of lead?—I could not tell you. It is a formula. Burnt Sienna in oil, $\frac{1}{2}$ ton; burnt umber in oil, $\frac{1}{2}$ ton; yellow ochre in oil, $\frac{1}{2}$ ton; Brunswick green, $\frac{1}{2}$ ton.

5111. Does that contain lead?—No. Fire-red, a quarter of a ton.

5112. What is that?—That is an artificial colour made for the purposes of replacing vermilion. It is a cheaper line; a very bright red, such as they use round fire hydrants, and that sort of thing.

5113. Do you know what material it is made from?—No. I could find out for you.

5114. Is it a lead?—I do not think there is lead in that. Indian red, dry, 1 cwt.; Brunswick green, dry, 1 cwt.; yellow ochre, dry, $\frac{1}{4}$ cwt.; fire red, dry, $1\frac{1}{4}$ cwt.; chrome yellow, dry, 1 cwt.; ultramarine blue, dry, $\frac{1}{2}$ cwt.; vermilion, $\frac{1}{2}$ cwt.; vegetable black, 6 cwt.; aluminium powder, 1 cwt. Then there comes linseed oil, 4,800 gallons; boiled oil, 2,000 gallons; genuine turps, 1,250 gallons; Keystona, 500 gallons. That is a proprietary line which is composed of zinc, I think. Then come the enamels. Berjapan, 130 gallons; Varnol, 90 gallons; Edelvice, 320 gallons; Japanol, 10 gallons;

Noble and Hoare's enamel, 15 gallons; Zinolin, 100 gallons; that is a line that is manufactured by the same people as manufacture the Keystona; elastic enamel, 30 gallons; anti-sulphuric enamel, 3 gallons; anti-corrosive and anti-fouling compositions, 50 tons.

5115. What do they contain?—They contain principally oxides of iron, various poisons, of which the principal source would be a copper, and for a fluid, petroleum.

5116. No lead?—No. Lead is against the principle for under water of a ship. That is the only place where it is laid down by the British Admiralty that you must not use it, on account of its high point of conduction and erosion.

5117. Who does the work below the water-line?—The painters and dockers.

5118. They do all outboard work, do they not?—In some cases. It depends on what the particular finish shall be. If it is to be an enamel finish, then the professional painter would claim that.

5119. On the outside of the hull, even?—That is according to their demarcations.

5120. Is any substantial proportion of the outboard work claimed by the professional painter?—No.

5121. Are ships lined these days?—Yes.

5122. They are not all grey?—No. Do you mean on the outside of the ship?

5123. Yes?—No; that is gradually dying off now. That was only a war-precaution as far as the grey was concerned. The grey top sides are gradually dying out. In fact, I think the only line running now in war-grey outside the fleet would be the Commonwealth Government line.

5124. You told us that there is not a large proportion of the outboard work which is claimed by the professional painters?—Other than the enamel work they claim nothing.

5125. Is there any large proportion of enamel work done?—No, only in the way of private yachts, that is all.

5126. Does that complete your list?—I have another list here of varnishers and dryers. With regard to the anti-fouling, I gave you 50 tons. That was what has been supplied by the dockyard. In many cases we have ships coming to the dock, and that material is supplied by the owners or the agents, but it would still be the same as this.

5127. So that there may be more anti-corrosive and anti-fouling paint that has been applied than has been bought by the dock?—I should easily say another 100 tons could be safely added to that. In continuation of that paint material list, comes the varnishes: there were 100 gallons of copal, 26 of carriage, 4 gallons of white spirit, 10 gallons of brown hard spirit varnish, 3 gallons of French oil; of dryers there were: Terebine, 300 gallons; gold size, 100 gallons; white Japan dryers, 150 gallons. That completes the list.

5128. I observe from what you have told us with regard to the paint bases that zinc white is used to a comparatively small extent in your operations at Cockatoo?—Yes. As I have shown you, we only use there, as against 50 tons of white-lead, 10 tons of zinc.

5129. You use five times as much of lead as you do of zinc white?—Yes.

5130. But there is another item, zinc-lead, a combination of zinc white and white-lead, I take it?—It is presumed to be so, but I would not guarantee it to be so.

5131. What is the character of that composition?—They claim it to be a composition of lead and zinc. We use it for making a lower grade and a cheaper paint. For instance, for the grey paint of top sides; we use it there in some cases.

5132. Do you know what form of lead it would contain, whether it would be a sulphate, or a carbonate?—No, I could not tell you. I do not know the source of supplies. It is only a minor line.

5133. Do those quantities you have given us represent the supplies for the eighteen months?—Yes. That has been the total expenditure.

5134. Does that represent not only expenditure, but consumption, or have you still a large supply of them in stock?—We have large quantities in stock, but that is our consumption, what has actually gone out.

5135. What has been issued and applied?—Yes.

5136. In connection with the inboard work, is there a very large amount of enamelling done in board?—Yes, the majority of work inboard in vessels to-day is in the way of enamel.

5137. And would that enamel be lead free?—High grade would be.

5138. High grade enamel is lead free?—Yes.

5139. What proportion of the work is high grade work?—First-class saloon accommodation.

5140. And all other inboard work would be second grade, so far as enamel is concerned?—Yes.

5141. And a proportion of it would, I take it, be lead-paint?—Yes, in all cases you would have lead.

5142. That is, the low grade enamel would contain lead?—Possibly so. Referring back to the high grade enamel, you would have lead in your base work there; I mean in your foundation work.

5143. That is, you would prime your surface?—Prime and second coat.

5144. So that there would be only a final surface of enamel applied?—On the under coating I prefer to use zinc.

5145. Then there would be two coats other than the lead?—You have two coats of oil—one coat of zinc and lead mixture and one coat of zinc—which is called the flattening coat. That is taking the work right up from the new ground. In the case of old work you would probably put a half lead or a half zinc mixture, or you might put a lead straight. It depends upon the nature of the work and the particular condition of the job you are doing at the time. As a rule, we finish with the zinc under the enamel.

5146. Would any of the professional painters employed on inboard work be handling leadless paint for any large proportion of their time?—The greater portion of their time they would be handling lead paints.

5147. There is no select class of painters who would be away from the lead, handling only the superfine enamels?—No, not in so far as we are concerned in our section of the work.

5148. Is there a more constant association of the professional painter with the lead paint than of the painter and docker with the same paint?—Yes. You employ the professional painter for the purpose of painting with leads or enamels the whole of his time, practically. There is very little varnishing done, whereas the other may to-day be working with lead paints, or oil paints as we call them, and to-morrow he may be using anti-fouling paints or oxides.

5149. So that the exposure to risk of damage from the use of lead is greater in the case of the professional painter than in the case of the painter and docker?—No. The painter and docker has more, although, as I have said, to-day he may be working in lead paints, to-morrow anti-fouling, and the next day anti-corrosive. The following day we may put him into what we call confined spaces, which would equal probably his other three days.

5150. So that you regard the risk, whatever it may be, incurred by the painter and docker as equal to the risk incurred by the professional painter?—From the actual work, yes; from the men, no. One man, I expect to

know more about his business than the other. One is to all extents and purposes an unskilled labourer.

5151. So that the risk incurred by the painter and docker is, because of his want of knowledge and want of skill in the handling of the dangerous material, greater than in the case of a professional painter?—In my opinion that is so.

5152. What is your opinion of the health risk run by all classes of painters from the handling of lead paints?—Well, we give it there. On a daily average over eighteen months we give you 448 men with one case.

5153. That is, 448 men were employed in the average per day, and the result is one case of lead-poisoning in the period of eighteen months?—Yes.

5154. The effect of your observation is that the risk is insignificant?—The risk is insignificant providing the man pays proper attention.

5155. By far the greater proportion of those men were presumably incapable of taking intelligent precautions for the protection of their health?—Incapable or unwilling to do so.

5156. So that even when precautions were not taken the risk did not materialise?—No.

5157. Do you regard the occupation as being as healthy as any other occupation?—From my personal experience, yes.

5158. You used the brush for a number of years?—Yes.

5159. And I suppose you used it in the main with lead paints?—I have used it in all descriptions of work. I have used a brush in every description of work that a painter has undertaken. I have gone right from the bottom of the ship to the truck; that is every section of painting, as far as a ship is concerned. I have done every description of housework.

5160. And your association with paints has been the average association of the tradesman?—More than so.

5161. I mean, so far as risks from the use of lead are concerned?—Yes.

5162. Have you suffered ill-health that was attributable to lead in any way?—On one occasion.

5163. What was your own experience on that occasion?—On that occasion I was 18 years of age, and I had painter's colic—not quite lead-poisoning. I only had the one experience, but it was quite sufficient for me.

5164. How long were you ill?—I was ill for three days. Of course, they had old-fashioned cures in those days.

5165. Since then you have practised a general hygiene suitable to your occupation?—Yes, suitable to my particular calling.

5166. What are your methods of protecting your health?—Proper attention to my body generally, keeping my body clean and attending to the inside.

5167. Do you keep yourself from functional disorder?—Exactly, with constant changes of medicine. I have had several men along there sick, and have asked, "What is the matter with you?" They say, "Oh, I do not know." I say, "You have not taken a dose of medicine lately," and he says, "Yes, I did; I took a packet of salts last night and had no result." That is the trouble with them; they take a packet of salts once in three months.

5168. You suggest then that constipation is the bane of the painter?—Yes.

5169. And he has to take precautions to guard against constipation?—Yes. Provided he does that, I do not see that he carries any greater risk than others, taking the normal individual. Of course, you will find a man who is capable of taking anything, and probably is more susceptible to paint than another man would be. In our establishment we deal probably a little more severely with men on the question of lead than elsewhere. Once a week the men are paraded for medical inspection, and are inspected

by the doctor. He examines them for knee-drop and wrist-drop, gums, teeth, and eyes, and any man he finds suffering is reported by him, and he must be removed from paint.

5170. How many men have been so reported and removed from association with paint?—As a rule they are returned for light duties. Most of our cases have been in the case of painters and dockers. We find them work in the way of chipping and scraping.

5171. How frequently does that occur?—Not very often.

5172. Can you give us the estimate of the number of men who were put off in the eighteen months?—No, I could not give you that.

5172½. Mr. COOPER: What sort of chipping and scraping?—Chipping and scraping oxide rust from cables and iron plates, and so forth.

5173. If they started chipping paint it would be almost as bad as the painting?—The rust I am referring to is on new plates. We have a big plate yard. We change them from one department to another. The conditions of the Department are that if a man is returned as being leaded, the doctor takes him in hand. As soon as he certifies that man as being able to resume work he resumes on light duties. It is no good of that man coming back to me; I would not have a job on light duties at the time. We find a vacancy for him, if we wish to retain him, in the stores or in the iron works if he is a labourer, or he is given an opportunity of going there to work as a painter.

5174. DEPUTY-PRESIDENT: Is the result of this medical inspection recorded on the spot?—Yes, by the medical officer himself.

5175. Who keeps that record?—He does.

5176. Will you ask him if he will be good enough to make that record available to us in respect to that same period?—Yes, I will apply to the general manager for that.

5177. We are interested to know how often the diagnosis of incipient lead-poisoning has been made in the case of this particular labour force. Would that be Dr. Roberts?—Yes, I think he is our last doctor.

5178. Will you see him to-day?—No, I do not think I will be seeing him to-day.

5179. If you see him to-morrow morning that will do?—If you require it I can deliver a message to him.

5180. Will you tell him the line of examination that has been adopted in your own case, and will you tell him that we are anxious to obtain from him, not only his own medical view as to the incidence of the disease, but the effect of the records that have been made by himself and his medical predecessors?—Yes.

5181. Mr. CONNINGTON: I would suggest over a number of years past. The painters have not been at work for the last nine or ten months.

5182. WITNESS: That is right.

5183. Mr. CONNINGTON: I think if you were to go back for three or four years, if the record is available, it would be most helpful.

5184. WITNESS: He will bring his journal along with him, and there you will probably find up to seven years.

5185. DEPUTY-PRESIDENT: He has been there as long as that?—No, not himself, but previous doctors have been there. You see, they are only there for a term and then they go ashore.

5186. Does one doctor pass the journal on to another?—Yes, it is handed from one to the other.

5187. Can you give us the same figures as you have given us for eighteen months, for a period of eighteen months earlier?—I will obtain those for you. One, of course, will coincide with the other, because the certificate

that the man is issued passes through from one department to another. It is recorded by the time-keeper and also by the medical officer.

5188. The difference is this, that the doctor anticipates the disease; he finds that lead-poisoning is about to supervene, and he so records the diagnosis, and he suggests that the man should be taken off in order that he may not become incapable?—Yes.

5189. Have you been present at those medical reviews?—Yes.

5190. Have you moved about amongst the men with the doctor?—I have stood alongside the doctor and watched the men through.

5191. Have you seen the lead-line on the gums?—Yes, I have seen it in many cases.

5192. These inspections are weekly inspections?—They were weekly inspections, but of late they have not been so because of the absence of men.

5193. In how many cases would you expect to see the lead-line on the gums at a weekly inspection?—Do you mean with the same people coming back?

5194. Yes, with the same people; what proportion of the men would show a lead-line?—Roughly, 20 per cent. The late Dr. Francis took a great interest in the whole lot of them, and in the majority of cases blamed the men themselves.

5195. Was Dr. Francis Dr. Robert's predecessor?—He was before him again. Dr. Ekin, of Macquarie-street, was the doctor who followed him.

5196. So that there was a series of doctors—Dr. Francis, Dr. Ekin, and Dr. Roberts?—Yes. Dr. Francis' period would be from 1914 for three or four years; then Dr. Ekin followed. Dr. Roberts, I think, has been there about twelve or eighteen months.

Examined by Mr. CONNINGTON:—

5197. With regard to other classes of employees is it the custom to review them weekly or at other periods?—Any persons working in lead materials.

5198. Then the inspections or reviews are confined to painters and persons working amongst lead?—Yes.

5199. I presume red-lead would be used at Cockatoo?—Yes.

5200. What other lead workers are there over there?—Plumbers.

5201. Do you parade the plumbers weekly or monthly?—I could not say about the plumbers; I have never had anything to do with the plumbers.

5202. Have you ever noticed plumbers at the weekly inspection?—No. They would be allotted off at different times.

5203. May the Board assume from your evidence (subject to your correction to-morrow, if you find it needs correcting) that the weekly review is confined to painters and dockers, to men working in that paint.

5204. DEPUTY-PRESIDENT: The witness always distinguishes between the two classes by calling one class professional painters and the other class painters and dockers.

5205. WITNESS: I do not think, in a sense, that there is a great deal of distinction. A lot of it is habit.

5206. Mr. CONNINGTON: We do not suggest that the danger is any greater with us than it is with the others; at least that is my present view.

5207. Do you know Mr. Alfred John Childs, a painter who worked at Cockatoo?—I cannot recall him.

5208. He suggests that he has been declared leaded by the doctor at Cockatoo. Will you look up your notes to see if Childs was employed there, and if he was employed there to see if he was recorded in the doctor's books?—I will look up the name of Childs and get any information that there may be.

5209. He happens to be on our list here; he is a man 55 years of age. Will you also look up your records with regard to David Smith, professional

painter, working at Cockatoo in 1917, and see if there is any record in the doctor's book relative to him. He is 36 years of age?—You give the name David Smith. I can give you a list of nearly 150 Smiths.

5210. If they are in that medical record we would like to have them?—Very well.

5211. You told us at first that there were sixty-three professional painters per day over a period of eighteen months?—Yes.

5212. That was taking an average of the number employed for the first nine months of the eighteen?—That is the first nine months averaged over the eighteen months.

5213. That is, for the first nine months you would have 126 employed, and you halved that?—First of all, we found out how many painters we had employed during the last eighteen months, and we averaged those over that period.

5214. DEPUTY-PRESIDENT: That is you divided the total number by the number of working days?—Yes. I drew your attention to the fact that during that eighteen months there was a period of nine months when we only had one painter employed. That was during the last nine months of the eighteen months.

5215. Mr. CONNINGTON: By getting the total number of professional painters and dividing by the number of days in the period, you struck an average of 126?—Over nine months.

5216. Well, sixty-three for the whole period, or 126 for nine months?—Yes.

5217. Later you told us that of the number of professional painters employed over that eighteen months the average number was one per day?—Yes.

5218. Does that mean it was two for the first nine months, but that spread over the eighteen months it comes to one?—Spread over eighteen months on the figures which I have before me of sixty-three per day for eighteen months, they give me here one man absent per day for the same period.

5219. That would be really two absent?—On the nine months? Yes.

5220. Two out of an average of 126?—On the nine months.

5221. The ship painters and dockers were on the whole eighteen months, so the average of seven per day is pretty correct?—That average there is a correct average right through.

5222. Dealing with professional painters, during the first nine months of the eighteen months, it might happen that there would be a considerable period when very few painters would be employed on the island?—During the first nine months out of that eighteen months there would be anything up to 200 painters employed. We were very busy just at that particular time. That was refitting time.

5223. I think we are getting a bit astray. You say that for nine months the average number employed was 126, and I think you said that for the first nine months the average was about 200?—I said that on many occasions we had as many as 200 painters per day. You asked me first whether we had on some occasions very few and on other occasions a large number.

5224. That is so; am I right or wrong?—That is correct on your question. My reply was that on some occasions we had more than 200.

5225. And at other times it was less?—Yes, it was down.

5226. Would it ever run to fifty?—Possibly as low as that.

5227. It would depend, of course, on the ship work that was to be done?—Yes.

5228. Of that 126 would there be men who would be casually picked up as exigencies of the trade required extra labour, or would they be regular men?

—There would be a percentage of them regular. As far as the men were concerned, all men were regarded as casual.

5229. They take their chance of getting work with you, Mort's Dock, or anywhere along the water front?—Anywhere at all.

5230. Of the 126 how many would be what you might call permanent men, that is to say, working wet and dry during the whole period?—Do you mean if it is wet weather do we put the men off?

5231. You have some men there, who, if they are not called weekly hands, are kept on regularly week in and week out?—There are men who are working there week in and week out, depending on the amount of work. With wet and dry, you put a man off because it is wet weather; we do not. The nature of our work would keep him employed.

5232. In the navvying trade they say, "A pound a day wet and dry." That means you are kept on wet and dry and you get paid wet and dry?—I understand now what you mean.

5233. Of the 126 men, how many of them would be men who are kept on week in and week out?—Possibly there would be twenty.

5234. And the remainder of that 126 would be casuals?—Yes.

5235. With regard to the painters and dockers, 385 per day for eighteen months, you followed the same system there?—Yes.

5236. And you took the total number of men spread over the year, divided it by the number of days, and struck an average?—Yes.

5237. Under that system, if you employed 1,000 men for one day in eighteen months, and you divided that 1,000 by eighteen, that would be an average of twenty-two men per day over the whole period?—Possibly you will know the system that that is derived by. You know the daily returns.

5238. Yes, I recollect at one time you adopted that system for the purpose of fixing wages?—Yes.

5239. I do not think it was approved by the Federal Court, was it?—I cannot say. I never dealt with those matters. That is their system there.

5240. DEPUTY-PRESIDENT: I understand you to say that there is a daily return showing a man's name and the time worked by him?—That is the daily record of each individual's work. Every morning at 9 o'clock there is a book sent into the office giving the total number of men employed, and where they are situated, and that goes up and is made up on the chart.

5241. So that the individual, with the number of days that he has worked in the year, figures in this computation, if he has worked 260 days, as "Brown, 260"; and the total of the names plus their working periods would have been added and divided by the possible working days;—is that so?—I could not say that.

5242. Mr. CONNINGTON: Was this your system: you took seven days to the week; if there were fifty men employed each day, you would say, 350 employees, and would divide it by seven, making an average of fifty a day. If, on the other hand, they had put on 350 hands on the Monday, and none on the other days of the week, you would divide the 350 by seven and say that the average employees for the week was fifty per day? In other words, they had 350 men for one day. Whereas the evidence given without thoroughly understanding the system would lead a person to believe that they had men on for seven days at the rate of about fifty per day. Of course, there is a world of difference for some purposes in having 350 men on for one day and having fifty men for each day of the seven days.

5243. DEPUTY-PRESIDENT: The witness can tell us whether the work was intermittent work or not. I gathered from him that until nine months ago the work was continuous.

5244. WITNESS: The work has been practically continuous.

5245. DEPUTY-PRESIDENT: And the labour force was fairly constant?—Yes.

5246. Mr. CONNINGTON: I have the evidence on the professional painters from the witness that some weeks there would be over 200 and some weeks the average would be fifty.

5247. DEPUTY-PRESIDENT: In the same way as the painting and docking industry fluctuates always.

5248. Mr. CONNINGTON: I am on the painters and dockers now.

5249. Then we get off that system on to analysing the method of arriving at your averages. Now we come to the painters and dockers. You have a number, 385, the average for the whole eighteen months?—Per day, for the whole eighteen months.

5250. You said this average was arrived at in the same way as that of the professional painters?—Yes.

5251. With the professional painters and dockers you have a number of employees week in and week out.

5252. How many would be so employed, approximately?—I have about three different periods, when calculating that. At the present time we are in the midst of the transfer, and things are on the floor. To-day we have 100 men and to-morrow we will have none. Going back to the time prior to this move-over, I think we could easily average 150 men running constantly on the twelve months.

5253. For twelve months you have had 150 men regularly employed?—With the rest, there would be 230, the casual hands?—Yes.

5254. That is the average number according to your method of computation?—Yes.

5255. With dockers and painters it might mean you would have 500 or 600 for the week. You have known cases where that has been so?—Yes.

5256. On other occasions you would have few, if any, casual hands at all—is not that so?—Yes.

5257. In regard to some of these 125 you have regularly, week in and week out, has not that number decreased apart from the last collapse;—has it not been as low as forty and thirty and such like?—You are giving me six or seven years to run. It has not been so within the last seven years, other than cases where work was available, bad management, defects caused otherwise. I will put it that way. Take, for instance, the transfer from the Navy Department to the Prime Minister's Department—that was the other day. We have had several of those little flutters.

5258. But the system is the same and the average pans out at that. With regard to the sicknesses from every cause during the last eighteen months, you have thirty-nine professional painters there?—No, not thirty-nine professional painters; the thirty-nine was the daily average of the other trades.

5259. DEPUTY-PRESIDENT: Of 3,500 men employed on the island, thirty-nine men per day lost time.

5260. Mr. ROUTLEY: I misundertsood the witness, if Mr. Connington is not correct. I understood Mr. Shearman to say all painters who were sick from other causes than lead, and all painters and dockers, 163.

5261. WITNESS: It is my mistake.

5262. Mr. CONNINGTON: Am I correct in my note?—Yes.

5263. DEPUTY-PRESIDENT: Let the witness re-state the matter. What was the number of cases of sickness from every cause on the island in eighteen months?—139.

5264. Mr. CONNINGTON: That is not the average?—No, that is the complete figure; sixty-three is the complete figure.

5265. DEPUTY-PRESIDENT: I am losing touch with you. My note is that thirty-nine men per day lost time.

5266. Mr. ROUTLEY: That is, employees other than painters?—Yes.

5267. DEPUTY-PRESIDENT: Of 3,500 men, thirty-nine men per day lost time.

5268. Mr. CONNINGTON: I have not reached that point yet.

5269. Mr. MANNING: Yes, it is really an answer to Question 2.

5270. Mr. CONNINGTON: The witness said in the last eighteen months there were 139 from every cause other than lead-poisoning, and 163 painters and dockers.

5271. Mr. ROUTLEY: The percentage was one for the painters and seven for the painters and dockers.

5272. WITNESS: The average is two per day on the 126 for nine months.

5273. Mr. CONNINGTON: Coming to the other figures, look at your note. Roughly, the number employed is 3,500?—Yes.

5274. The average absentees from sickness is the thirty-nine per day?—Yes, thirty-nine per day is the average.

5275. Does the thirty-nine per day include cases of accident?—No, they would not be entered under the heading of sickness.

5276. With regard to the question of sickness, if a man stayed away for a day, a casual hand, is it necessary for him to report his absence, or the cause of his absence?—He is allowed three days' grace. At the end of three days he must produce a doctor's certificate.

5277. That is the casual hand?—Yes.

5278. If he produces that certificate, you keep a record of it?—He is then sent to the doctor with a sick-note which the foreman gives him. He is sent along to the Departmental doctor, who takes that certificate and examines him. If he gives him a certificate also declaring him fit to resume duty, it is sent along. He is examined by the doctor, who may order him a further period of rest, especially if it is a Wednesday.

5279. All this would be without pay to the employees?—Certainly.

5280. And if the employee does not report at the end of three days, what happens?—He must produce a certificate to resume duty. Otherwise it is optional for the foreman to cut him out. If he is absent for six days without a certificate he is wiped out altogether and must make a fresh entrance.

5281. Even in cases where the doctor detects symptoms of lead-poisoning you reserve the right then to continue the employment of the man or put him out altogether;—it would depend on the circumstances in each case, I suppose. That is the gist of your evidence?—Quite right. The doctor is the deciding factor always.

5282. Does it frequently happen the doctor gives a decision one way or the other on this point?—Not very often.

5283. You have known cases of the doctor deciding against workmen, and the management?—Transferring him across.

5284. And you have known of cases where the management decided not to re-engage them?—No, I cannot say so definitely.

5285. Have there been many transferences during the last eighteen months?—No.

5286. Have there been any you can remember?—Not during the last eighteen months.

5287. Do you remember any before that?—There was one case.

5288. The doctor's record would be the best assistance, in that case?—Yes.

5289. With regard to material used—you said 250 tons—Mr. O'Brien, the secretary of the union, is an authority on these matters—

5290. Mr. MANNING: You need not tell the witness that.

5291. Mr. CONNINGTON: I understand Mr. O'Brien is an authority on these matters and has analysed your evidence. Can you say what proportion of the 250 tons may be regarded as poisonous paint;—have you figured it out?—No, I have not.

5292. Would it be half and half?—It all depends who had hold of the paint, I should say.

5293. But I am asking you about the paint used, not what you use, but of the total amount of paint at Cockatoo what percentage would be non-poisonous?—From what point of view?

5294. From the trade point of view. There are two classes of paint. One is known as non-poisonous, and I assume the other is regarded as poisonous?—Yes.

5295. Mr. CONNINGTON: That will do for our purpose.

5296. DEPUTY-PRESIDENT: The witness does not know what our purpose may be. Any paints mixed with turpentine may be regarded as poisonous.

5297. WITNESS: Not at all.

5298. DEPUTY-PRESIDENT: It is no good asking the witness from the point of view of our purpose, how does he class the paint. You will have to ask him how much of the paint will contain lead. We will determine whether or not it is poisonous.

5299. Mr. CONNINGTON: Of the total quantity used, what percentage would contain carbonate of lead, approximately?—

5300. Mr. MANNING: Is the return there?—Yes. The 250 tons is the total quantity, fluids and all. I gave the various weights of the different ingredients, which are all set out there—the leads, red-leads, zines, zinc-whites, and all.

5301. Mr. CONNINGTON: We could not have the benefit of your figuring on the question of weight?—

5302. Mr. MANNING: If you give the witness pencil and paper he will work it out for you. This is apparently an examination in mental arithmetic.

5303. Mr. CONNINGTON: I think we have to ask questions as to the quantity of paint used with lead, and without lead. That was asked right through of the railway witnesses. I think it is an important question, and relevant.

5304. WITNESS: The possibilities of paint contained in this 250 tons which would contain lead-poison—is that your question?

5305. Mr. CONNINGTON: Which has a lead basis?—That is another question. In the first place, there are directly about 80 tons of material containing lead in one form or the other. Again, there are the enamels, some of which are enamels and some of which are not enamel. The percentages of that need to be worked out.

5306. Enamel has a zinc base, has it not?—Yes, it is presumed to be such.

5307. I am not speaking now of what you spread on the surface, but before it is spread on the surface;—can you suggest any brand of enamel which is anything else but a zinc base?—I would not like to do so; I would rather not express myself as to that.

5308. For the purpose of enabling men of experience, or men partly experienced, to use it, you dilute it with a little lead?—No.

5309. They do in some places, but you do not?—No.

5310. What do you do for the purpose of thinning it down?—We make no dilution at all. I demand from the manufacturer a paint or enamel in a tin, in a fit condition to be used.

5311. And the painter or docker spreads it?—The painter or docker does not use that at all.

5312. All the enamelling is done by professional painters, is it?—Yes.

5313. With regard to your Commonwealth ships, are the men's quarters enamelled?—No.

5314. What is it?—Oil painting.

5315. You do not enamel them?—No. I have only seen the specification in one particular case of several ships which we built. Portion of the crew's quarters were enamelled.

5316. Was it pure enamel you put on at Cockatoo?—Yes, it was. Before leaving that matter, we gave them an enamel on the line with the particular class of work required. I did not give them the same enamel as I put in the saloon.

5317. You put in a little colour, did you not?—No.

5318. Is it not the one brand of enamel you use?—No.

5319. Generally speaking, we may take it that enamel paint is enamel paint, and that its base is zinc?—

5320. DEPUTY-PRESIDENT: The witness said first-class enamel is made on a zinc-oxide base, but inferior enamels contain lead.

5321. Mr. CONNINGTON: I want to know what particular brand of enamel contains lead?

5322. DEPUTY-PRESIDENT: The witness does not want to condemn enamels in the trade.

5323. Mr. CONNINGTON: Can you suggest some enamels which you are using which contain lead base?—Not that we are using.

5324. But what you are using at Cockatoo?—What we are using in the way of enamels are of a distinct lead base.

5325. A doctor giving evidence here expressed the opinion that lead falling on any part of the body was dangerous to the system?—I would not like to take all doctors' reports on it, any more than I would like to take all enamels. You have only got to say to some doctors you are a painter, and you have all sorts of things wrong with you.

5326. Mr. MANNING: You have given us now how the 250 tons are made up and what it consists of. Amongst other things, you mentioned to Mr. Connington that there are 80 tons of paint containing lead in one form or another. There is no doubt about that, of course. Then you have mentioned a number of these other materials that make up the 250 tons;—do any of those contain lead in any quantity at all?—No, not in themselves.

5327. Take, for instance, the proprietary paints;—can you say, without analysing the contents, whether or not they contain any lead at all?—In the way of enamels?

5328. I will not necessarily say enamels?—I have only quoted you enamels in one other line, and that is Keystone, which they claim contains no lead of any description. They claim it to be zinc.

5329. And the other enamels are all built on a zinc base?—Yes.

5330. Is there any dry rubbing down at Cockatoo Dock?—Not where it is possible to avoid it.

5331. It is done sometimes, is it not?—It depends on the class of work which is being treated.

5332. What class of work would it be?—You would probably skin dry-rub the varnish work.

5333. And a good deal of the interior wood-work, perhaps?—It depends on the nature of the work.

5334. At any rate, it is gone in for to some extent, this dry rubbing down?—If I had a job come along to re-enamel—I think that is the point you are coming to. The first work done would be to stone down in water. That is the main cut down. From that the work would be got up with an oil colour. Possibly it would get a rub down in that, with sand-paper. It would be built up from that. But the dry rub-down, cutting the dry surface away, is done in pumice-stone and water.

5335. Is it always?—Yes.

5336. Take the rubbing down with sandpaper when you are preparing a surface which has been enamelled?—Or to be enamelled?

5337. I understood you to say you would first rub down with pumice-stone and water, and afterwards with sand-paper?—Coat with an oil colour.

5338. And then rub with sand-paper—that would be with the ground paint on?—Yes, with the green paint.

5339. You do not go in for the rubbing down with the dry sand-paper at all?—No, not where it is possible to get away from it.

5340. Is it always possible to get away from it?—Not in all cases.

5341. So the amount of dry rubbing down, I take it, is very small?—Yes, very small.

5342. DEPUTY-PRESIDENT: What about the burning off?

5343. Mr. MANNING: Is the burning off of paint engaged in up there to any extent?—Yes.

5344. What do you find the consequences of that to be;—are they at all harmful?—Not that I know of.

5344. You have done a considerable amount of it and seen other people on it?—As many as thirty to forty on a job.

5346. DEPUTY-PRESIDENT: What kind of paint would be burned off?—Generally lead paint and “true” paint and kalsomine. I am speaking of several ships returned lately—mixtures of every description, from lime-wash upwards.

5347. How would you know when to rub down with pumice-stone and water or to burn off?—From experience of the condition of the work you are treating.

5348. Which process is used most frequently?—Rubbing down with stone and water.

5349. What percentage of frequency would be attached to each case;—would you rub down in more than 50 per cent. of the cases?—Yes.

5350. Mr. MANNING: After you burned off would there be any dry sand-papering done?—Yes, there would.

5351. Would you always do it after the burning off?—Not always. If you have room enough, where you can make a mess, you will probably do a bit of stoning down, where the mess did not worry you.

5352. There is another matter I wanted to ask you about. Can you give me an idea of the various classes of positions, or rather places, where the men get to when they are carrying out the painting operation? For instance, some of them would be down in the well of a ship, and others would be on the outside. What sort of places would they get to, to perform painting operations?—Possibly this will tell you what you want to know. What we term professional painters are the tradesmen. They do all cabin work, first and second classes of accommodation, officers' accommodation, cooks and stewards, any deck work that requires to be enamelled; deck work, if it is in oil colour above a certain line—a certain portion of the ship. The other people, the painters and dockers, would do bilges, double bottoms, bunkers, engine-rooms on the floor line, boiler-rooms, holds, seamen and firemen's quarters, and stores. One set of stores are done by the professional painters—the provision stores section. Mast yards and funnels and top side of a ship, and the bulwarks if in ordinary colours, are done by the painters and dockers.

5353. I would ask you to consider for a moment the relative merits of zinc and lead paints. I want to ask you first about some characteristics of lead paint? First of all, do you or do you not recognise the possibility of cracks occurring in zinc paint?—Yes.

5354. That is well recognised, is it not?—Yes; it is a matter which you must overcome or endeavour to do so.

5355. In proportion to the number of cracks, I suppose the weather-resisting properties have been admitted?—Exactly.

5356. Is there anything of a "ropiness" apparent in a zinc surface?—Painting on the mixture —

5357. And the number of coats?—Painting on the mixture there are; I never use it in making it up.

5358. What is the factor which constitutes or does not constitute ropiness in the mixture?—In using the zinc paint, if you try to get it on the one paint instead of two you will certainly have ropiness. If you do not go through the proper method of preparing the zinc for paint you will get it. In the same way you will get it with the other, with the lead.

5359. Ropiness would be apparent in the case where an attempt were made to extend its covering powers?—Not so much that as its density.

5360. DEPUTY-PRESIDENT: Its obliterating power?—Yes.

5361. MR. MANNING: As to zinc white, may be take it that invariably means thick coats?—No; it means more coats.

5362. That means a thick volume?—?—Not if the paint is made as a paint. If you make it up like a paste and try and put it on like a paste, of course it is thick; but then you are not doing the thing in a proper manner. Taking the work in a proper manner, you can only make paint to a certain consistency, after which it is no use for the work you are trying to do.

5363. With regard to the zinc white, is the number of coats?—?—If you start a job on zinc white alone, by the time you get the full density with it you will probably need to put on five or six coats.

5364. And what would be the corresponding number of coats, with that density, if the paint were a lead base?—Three.

5365. You have also mentioned the red-lead putty. With regard to that, do you look upon it as a substantial commodity for use in carrying on operations?—It is essential in engineering.

5366. Would it be essential in work for preparing paint?—Not in painting. We handle that line purely and simply for the purpose of engineering, for jointings.

5367. You mentioned it as part of the 250 tons?—Yes, because that is portion of the material used by the shop.

5368. Have you had experience of red oxide?—Yes.

5369. Have you known people become affected with red oxide as well as lead?—One man came into the shop and said he had been leaded. He began working about three months ago on a double-bottomed job, and came up and said he was leaded. I looked him up and found he had only worked for us for three months, prior to which he had been working in the country somewhere. He was a labourer. When we came to go into the question of where he had been working it was found he had been working with red oxide.

5370. Was he afterwards examined by the doctor?—Yes, and reported himself as sick.

5371. DEPUTY-PRESIDENT: What is the red oxide composition?—Oxide of iron with boiled oil and dryer and gold size. There is no turps in the particular section where that is worked.

5372. MR. MANNING: Have you known painters to become affected through the use of turps?—Yes, it is possible for a man to get drunk on it.

5373. Is it of frequent occurrence that they become affected by using turps?—No, I do not think so. It may smart a man's eyes occasionally when he works day in and day out on it.

5374. You have advocated the use of cleanliness as a preventive?—That is the principal thing.

5375. In particular, what do you regard as the cause of a man becoming affected by lead? Is it by having paint on the hands?—I will give you an instance. Take a submarine: there are pockets in her where you have to work yourself in one way and turn yourself pretty well inside out to get out again. I have seen men come out of there and you could not tell the difference between the man and the pot of paint he carried, for the amount of red-lead which was on both—clothing, hands, and face covered. These men have come up out of the tank and sat down opposite my office and started to eat their dinner, with the red-lead wet upon them. They would take up their food with a piece of paper, which would last one or twice, and put the food in their mouths. We provide these men with washing facilities. They are provided with a sort of caustic sand soap to remove paint from their hands. They get it and take it away—a lot of them—for other purposes, but forget to wash themselves. I have seen a man with the one block of paint on his face on Monday morning and the same block there on Saturday at dinner time when he was going home.

5376. You have come to the conclusion that the most important thing to attend to is personal cleanliness?—Yes.

5377. As to the use of putty containing lead, is that frequently on a man's hands?—It should not be on his hands.

5378. But it is frequently there?—Unfortunately, through sheer neglect.

5379. With regard to that class of thing you suggest men should be more careful?—By carrying the work out in a proper manner.

5380. Mr. WILLINGTON: I suppose the men smoke during work?—Yes.

5381. They are allowed to fill their pipes and so on?—They have been allowed to smoke since the influenza epidemic.

5382. Do they rub the tobacco in their hand before putting it into their pipes?—Some of them do it without any rubbing at all.

5383. It would be possible to rub some of the paint off their hands, also?—Yes, it would be quite possible. In some cases they eat the tobacco.

5384. Mr. CONNINGTON: Are the men allowed to smoke on the ships?—Yes, since the influenza.

5385. As to cleanliness, do you provide hot water?—No, but we provide soap.

5386. Where do the men wash?—There is a line of sixteen troughs.

5387. Do you allow them any time off to wash?—Yes, five minutes before meal hour and five minutes at night.

5388. Do you think if they were provided with hot water it would be of any assistance to the men in getting the paint off their hands?—Not necessarily. The soap we supply would shift anything. It was made for the purpose of doing away with hot water.

5389. Do you supply any beverage to the men?—Yes, orangeade previous to meal time.

5390. You give them five minutes to clean up and supply them with a glass of this stuff?—One wineglass is the dose ordered, but if you let them go they will drink a pint.

5391. You take care they do not go on, I presume?—As far as possible.

5392. Each man gets the regulation quantity?—Yes.

5393. The object of that is to counteract any influence the lead may have on the individual?—Yes.

5394. DEPUTY-PRESIDENT: What is the composition of this beverage?—Diluted sulphuric flavoured with orange.

5395. Mr. CONNINGTON: Do you think that is a useful precaution to provide against trouble from lead-poisoning?—Yes, in conjunction with the first principle.

5396. Cleanliness and that beverage?—Personal cleanliness and attention to themselves.

5397. DEPUTY-PRESIDENT: Is there much demand for this drink?—No; occasionally you have to force the men to take it.

5398. But is it one of the condition of service the man shall drink what he is told to drink?—The conditions are that every man shall be supplied with a glass of this orangeade and that the foreman shall see that he takes it.

5399. Does the foreman discharge his duty?—As far as possible.

5400. You cannot be in fifteen places at once?—No.

5401. What arrangements are made for the distribution of the drink?—It is made up in a bottle and sent along five minutes before the dinner hour and placed in a convenient position.

5402. Does the man drink it out of the bottle?—No, every man provides his own mug or cup to drink it from.

5403. That is, the drinking vessel he uses for his meal afterwards, is used as a receptacle for this medicine?—Yes. It is not an unpleasant drink.

5404. Mr. CONNINGTON: Am I correct in summarising your evidence in this way: of the 250 tons of paint used altogether, 80 tons of it has a lead basis, and the remainder a zinc base?—

5405. DEPUTY-PRESIDENT: What the witness said, as far as my memory will guide me, is that of a total weight of 250 tons approximately 80 tons represent lead in some form or other.

5406. WITNESS: Exactly.

5407. Mr. CONNINGTON: And of the remainder, what would you say?—

5408. Mr. MANNING: I suggest that this is taking the witness time and again over a statement already given, and that there is no useful purpose to be served by it. He said about the 80 tons, and the rest he has given the composition of. If you want information as to the particular items he has mentioned, well and good; but what useful purpose can be served by taking him again over what he has already said?

5409. DEPUTY-PRESIDENT: Examination and re-examination at different times on the same matter is likely to be harassing when the record is re-perused.

5410. Mr. CONNINGTON: I want to see if the witness can give me the information in a summarised form.

5411. DEPUTY-PRESIDENT: He has already given it in this way: of the total weight, 80 tons represent lead in some form or other. Of the balance there is so much zinc white, and so much other things. If you ask the witness whether these items contain lead, and if he took them into account in the 80 tons, you may be throwing light on the matter. A very considerable portion of this weight is in oil.

5412. WITNESS: There is 61 cwt. 3 qrs. 2 lb. in the shape of liquid, out of the total of 250 tons.

5413. Mr. COOPER: Does that include the oil?—No.

5414. Mr. CONNINGTON: There are 80 tons of lead without the oil?—Yes. That is barring the actual percentage of the oil that is in the lead. There is no dry lead in it at all.

5415. Is the remainder of the 80 tons non-poisonous paint?—No. Take, for instance, Brunswick green; if you mix a teaspoonful of that up in a glass of water it will poison him.

5416. DEPUTY-PRESIDENT: A great proportion of the balance is poisonous, but it is not in the form of lead.

5417. Mr. CONNINGTON: I was endeavouring to separate the poisonous paint from the non-poisonous.

5418. DEPUTY-PRESIDENT: The witness is prepared to admit nearly all is poisonous, but very little of it contains salts of lead or poisons arising from lead. I have no doubt that a number of these colours contain lead in some form. Do you want that information?

5419. Mr. CONNINGTON: If we cannot get hold of it in some form which makes it appreciable, I will not worry about the details.

5420. DEPUTY-PRESIDENT: It may be impossible for the witness to answer questions as to ochres, &c. He may not know if they contain lead. The varnishes may contain lead, and he may not know that they do.

5421. Mr. CONNINGTON: I agree with that. Can the witness, who is an expert in this matter, say of the 250 tons there is a certain proportion of what is known as poisonous paint, and the remainder non-poisonous? If we cannot get that we cannot go further.

5422. DEPUTY-PRESIDENT: I am afraid you will confuse the witness by asking him whether they are poisonous. He can tell you if they contain lead. If you ask if they are poisonous he will say "Yes," but very few of them are poisonous because they contain lead.

5423. Mr. CONNINGTON: I do not think he can give the evidence in the way I thought he might be able to give it.

5424. DEPUTY-PRESIDENT: Have you made a note of the things we require?—Yes.

5425. Have you your note to the answer to the second question?—Yes, I produce that.

5426. DEPUTY-PRESIDENT: We had better make an exhibit of these papers. They are requisitions for information which were issued by Mr. Shearman to officers in the establishment. The replies as given by the officers are shown in the papers, so I think on the whole it would be advisable to make an exhibit of it.

5427. You intended to give the whole of the information you collected, did you not?—Yes, the whole of it is there.

5428. Mr. MANNING: There may be some few things he has not mentioned.

5429. DEPUTY-PRESIDENT: Because of the doubt which arises as to the answer to the second question, I think it would be wise for us to retain the papers from which the witness spoke.

[*Information collected by Mr. Shearman in connection with the inquiry by the Board of Trade put in; marked Exhibit No. 6.*]

5430. DEPUTY-PRESIDENT: If you require any reminder as to what has occurred to-day you might communicate with Mr. Woodham, and he will be glad to give you a list of such instructions as you may need?—Thank you. The information you want from the medical officer is to submit the journal for the past three or four years, dealing with paints?

5431. Yes. Can you tell me if the records with regard to absentees are kept in such a manner as to show the causes of such absence as far as is attributable to ill-health in relation to the whole of the employees at Cockatoo?—Yes; absentees are lined off in this manner: First of all, is a man absent without leave? Then there is absence with leave, absence with annual leave, absent sick—which absence does not include a man suffering from lead—absent hurt—which includes a man suffering with lead. Any man who is reported by the medical officer as suffering with lead is entered on the hurt list.

5432. Mr. ROUTLEY: That is classed with an accident?—Yes, on the accident list. The daily sheet shows the whole lot of that.

5433. DEPUTY-PRESIDENT: That is, as far as concerns the painters. But as far as concerns the other 3,500 men?—They are shown on the same sheet.

5434. So that one can compare the reasons as far as are attributable to ill-health, with absence in their case, with reasons of the same kind for absences on the part of painters?—Yes. The only difference is that you would find painters suffering from lead-poisoning on the hurt list, whereas those suffering from sickness are shown on the “knock-off” list.

5435. Although these men might appear on the hurt list, the character of a man’s injury in the form of lead-poisoning would be set out opposite his name?—In all probability that would be so in the medical journal.

5436. What officer is responsible for the compilation of that record?—The medical officer is responsible for that one. The accountant is responsible for the general daily sheet. There are really two sheets you want. First of all there is the medical officer’s report book. That gives you every man who is sick, hurt, or away from any other cause. Then you get the accountant’s general sheet, showing you the total number of men employed each day in each department—the number of men absent from various causes, whether sick or accident, but you do not get a particular man’s name or the nature of the illness.

5437. The accountant only keeps a statistical summary?—That is all.

5438. That is the detailed sheet we would need to get, I think?—Yes, and the medical officer is in charge of that. That is all entered in his journal. I was asked a question about two men. Do you want that information to be returned to you? If the medical officer is coming here he will be able to give you that.

5439. DEPUTY-PRESIDENT: Mr. Woodham will let you know if we have obtained it from the medical officer.

(Witness retired.)

(At 4 o’clock the Board adjourned until 10 a.m. the following day.)

NINTH SITTING.

WEDNESDAY, 13 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, Sydney, at 10 o’clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. WILLINGTON

MR. ROUTLEY

MR. COOPER.

JOHN FLANAGAN, previously sworn, further examined:—

5440-1. Mr. CONNINGTON: Before commencing with the evidence this morning, I would like to say that I have checked that list of 120 names which was put before you early in the case, for the purpose of ascertaining whether there was any particular doctor or doctors who had attended to a number of the men whose names were on the list. I regret that we can only find a very few cases where that has happened. Dr. Bruce, of Enmore, has apparently attended to two of the cases; the Cockatoo Dock doctor two cases; Dr. Nash six cases; and Dr. Nobbs, Balmain, three cases. Outside of Dr. Nash there are only three doctors who have attended two cases each. In every other case it appears to be one doctor to one painter. Does the Board think it will be advisable to call all those doctors?

5442. DEPUTY-PRESIDENT: We had better wait and see what is the effect of the medical evidence at Cockatoo and Garden Island, and the effect of

the health records to be derived from the Railway Commissioners' office. Then we can consider the expediency of investigating the health of the men who are on your list through the doctors who have attended the individuals named.

5443. Mr. CONNINGTON: Very well.

5444. Mr. MANNING: I forget whether that list was put in.

5445. Mr. CONNINGTON: I have handed it in.

5446. DEPUTY-PRESIDENT: It was not made an exhibit, but it was discussed.

5447. Mr. CONNINGTON: After exhausting all possible means at your disposal to have the list tested, I shall ask for it to be put in. It will be for the Board to determine whether that list should be tested.

5448. DEPUTY-PRESIDENT: When you speak of a list you speak of your list, I take it, and not the list with which Mr. Flanagan's information is combined.

5449. Mr. CONNINGTON: No; I am speaking of the 120 names.

5450. DEPUTY-PRESIDENT: The original list?

5451. Mr. CONNINGTON: Yes.

5452. DEPUTY-PRESIDENT: Has Mr. Flanagan given you a list of men who claim to have been affected with lead?

5453. Mr. CONNINGTON: No, he has not supplied me with a list.

5454. WITNESS: I have a report here giving the information that I promised the other day.

5455. Mr. CONNINGTON: He has worked very hard in connection with this, and I would like you to hear all his evidence.

5456. DEPUTY-PRESIDENT: Very well; you examine Mr. Flanagan according to your own discretion.

5457. Mr. CONNINGTON: How many cases are there in your union?—Approximately 500 painters and assistants.

5458. Coach painters?—Coach painters and assistants. We do not take any others than coach painters.

5459. How many of the 500 would be coach painters, do you think?—I have not divided them; I could not tell you how many would be coach painters, but the majority would be.

5460. DEPUTY-PRESIDENT: The remainder being assistants?—Coach painters' labourers or assistants.

5461. Mr. CONNINGTON: You were telling us something at the last sitting about the work as it is carried out at Eveleigh?—Yes.

5462. You were referring to the coach where the pipe runs through?—Yes; I was explaining to the Board about the gas-pipe. I thought it was understood that rubbing down was to be done in all cases with the pumice-stone, and I was explaining that that was not so; but after the paint is burnt off with the gas you could not rub that down then, because it was down to the raw wood, with the exception of the dry lead that was left in it, the oil and turps being scorched out of it with the flame. Then I said that the painter and the painter's assistant, if he was on the job, sand-papered while the job was hot, and the dust and lead was flying all the time. After the job was filled up with patent filling, the operator took the stone, a bucket and a sponge, and he squeezed the sponge on to the thing and rubbed wet.

5463. DEPUTY-PRESIDENT: Is that filling a priming coat of paint?—No, it is not a prime; it is to get the mill-like surface that the painters produce. It fills up all the pores of the wood.

5464. Is the filling applied with a brush?—Yes.

5465. What is it usually made of?—There is a new patent filling out now, which I do not know the formula of. It is a powder, either Harding's

filling powder or Noble and Hoare's, and the way they use it in the Railways is this: you put a certain amount of tub lead in with that to bind it—

5466. What is tub lead?—That is white-lead; that is just a dry lead. It is a trade term. When you say a "tub lead" you mean it is wet; the other is dry lead. You put that in the paint with gold size and a hard drying varnish, and it is put over the top; perhaps you apply five to seven coats of the filling. Then a guide coat is put on, to guide the painter in the coat to lay. He rubs it until that guide coat is off. When all that guide coat is off he has a surface. He again primes over the top of that, and then he puts the Tuscan Red on, the glaze, lime, scroll, and varnish.

5467. Mr. CONNINGTON: There is some rubbing down to be done in connection with that work?—Yes. That is what I was explaining when I spoke on Thursday afternoon. What we call sand-papering they call rubbing down. We call the operation I have just explained rubbing down, and the other we call sand-papering.

5468. DEPUTY-PRESIDENT: Rubbing down is done with—?—A bucket, a sponge, and pumice-stone or a fabric.

5469. It is rather in the nature of rubbing in, is it not?—No.

5470. Do you actually rub off?—You see, it is absolutely dry, this filling; it is a brittle sort of thing. When you put the guide coat over it this guide coat is made up with no binding. There is very little gold size in it; it is just turps. It soaks into that, and you rub it, and you can hear it all the time. You rub it to get a surface. The coach painter gets a better surface than the house painter. He produces a mill-like finish, whereas the house painter does not bother about getting such a good finish.

5471. What do you rub it with?—Pumice-stone or this brick, which is called a 3 x 2 stone. It is a square block.

5472. What is its composition?—I could not say. I suppose it would be very fine sand ground up like flour and baked like a brick. It rubs away with the filling, too.

5473. Mr. CONNINGTON: The idea all the time is to get a smooth surface?—Yes, and you apply another coat of lead colour on top of that.

5474. Do you go through the same operation again then?—No. We then take sand-paper when it is dry, and sand-paper all the ribs off. We call that sand-papering and not rubbing. The idea is to make it smooth again. You polish that with the sand. You do that after every coat of paint.

5475. And finally before you apply the enamel?—I am not speaking of enamel.

5476. Just paint work?—Yes. Enamel is only used on the inside of the ceilings.

5477. Of the carriages?—Yes. This filling is on the outside of the body.

5478. You are dealing with railway carriages?—For the present I am dealing with railway carriages.

5479. From your point of view, is there anything objectionable in this rubbing down or sand-papering process?—I do not think the rubbing down is injurious. Some men growl about it, but that is from having wet feet. It is only arduous. The sand-papering is what the average painter complains about; the dust goes down his neck, both from the dry sand-papering and from the sand-papering after the second coat of lead colour on top of the filling.

5480. Could that operation of sand-papering be avoided?—No, not in the coach shop.

5481. It is unavoidable?—Yes. I have tried horsehair. When I was apprenticed about fifteen years ago, I remember Binney's had a sort of a

steel shaving—I cannot give you its name—but it was very, very fine, like horsehair, and it used to crumple up in your hand. For years I had a piece in my hand. The painters could not use it, because it got under the nails and into the skin. It never had the same effect as sand-papering. It would not bring about a dust, but it would not have the same effect on your job as sand-papering.

5482. You could not carry out as good a job with it?—No.

5483. However, the sand-papering is the job that you think the men object to?—The sand-papering is one of the jobs that all the men object to, and painting off; burning-off and sand-papering.

5484. Some painting is done by machinery at Eveleigh, is it not?—The trucks are painted that way—not at Eveleigh now, but they were formerly done at Eveleigh. They are done at Clyde repair siding now by a machine.

5485. How does the machine operate?—There is a sort of drum standing a few feet high, containing some kind of a composition; I could not say what it is, but it is grey in colour.

5486. Is there any lead in its composition?—I do not think so. There is a spray which just sprays up and down, and the painter follows that with a big brush and lays it off.

5487. From your point of view, is there anything dangerous to health about that?—I would not do it at £1 a day myself.

5488. But is it dangerous to health?—The men who have worked on it have told me it is dangerous to health, and on the list I handed to the President appears the name of Alf Ayre. I saw his mouth when I was in the shop on Monday, and his teeth were coloured half-way down. He told me that the doctor had ordered them to be extracted.

5489. Which doctor?—Dr. White, of Kogarah.

5490. Are there any other cases?—Fred Finnen.

5491. Is he still in the Railway Department?—I think so.

5482. Mr. MANNING: I think this comes within your ruling, sir.

5493. What was the name of the other man you mentioned just now?—Alf Ayre.

5494. Mr. CONNINGTON: Is there anything else Ayre complains of?—I asked him the three questions I put down there and he says he is quite prepared to submit himself to examination by a board of doctors, and is also prepared to give evidence before the Board if necessary, and if called upon.

5495. Showing the effects of his work on his health?—Yes.

5496. Does he complain of sickness or ill-health in any other regard?—No; I did not question him beyond the three questions. I discussed those questions with the foreman.

5497. What were the three questions?—The first one was: “Have you ever suffered from lead-poisoning, and have you got a certificate to that effect?”

5498. What was his answer to that?—He told me, yes, he had a certificate from Dr. White; and he said, “Have a look at these,” and he pointed to his teeth.

5499. Mr. MANNING: I think that class of evidence comes within the class of ruling you have given, Mr. President. This witness is saying that somebody told him that his doctor told him something.

5500. WITNESS: But I was given a direction from the Deputy-President to go into Eveleigh workshops and get a list. I was not told the exact way I should do it, but I discussed these questions with the foreman, Mr. Stanton, and he told me he thought they were very fair.

5501. DEPUTY-PRESIDENT: I do not think there was any direction as to questions.

5502. WITNESS: No, there was no direction as to questions.

5503. DEPUTY-PRESIDENT: Mr. Connington, what Mr. Manning objects to is the evidence being given through Mr. Flanagan that could not be given through Mr. O'Brien. Mr. O'Brien had put the same questions to members of his union, and the answers that he had received had been tabulated, and appeared on the paper that you offered to us, and which Mr. Manning objected to.

5504. Mr. CONNINGTON: I see that, but I see this also: that witness after witness is called here and gives his opinion; whether they are capable or not of expressing an opinion as to the ill-effects or otherwise of the painting trade on the men's health, I am not dealing with at present. We get their view, and when we come to analyse that evidence we will refer to their statements, and possibly question their qualifications for that purpose. I do not know how you could conduct an inquiry of this character on the lines Mr. Manning suggests, for the simple reason that the finances of the union could not stand the strain of bringing people along here to say that they had a doctor's certificate, and to tell of the ill-health they are suffering from for which they blame their work. Mr. Manning would at once question their evidence, and would say that we have to get some approved doctor to certify that the ailment they are complaining of was due to their work.

5505. DEPUTY-PRESIDENT: That is no reason why the Board should leave itself open to error, is it?

5506. Mr. CONNINGTON: No.

5507. DEPUTY-PRESIDENT: If the union is unable to bring the evidence that ought to be brought, then its position when disclosed to the Board will be considered, and perhaps the Board will be able to call the evidence that the union is unable to call. You see, the information that you get from Mr. Flanagan and from Mr. O'Brien should indicate to you the class of evidence that ought to be called; but the instructions that you get from Mr. Flanagan and from Mr. O'Brien may not be in such a form as to be converted immediately into evidence through those two gentlemen. They inform you that as the result of inquiry they have ascertained that a number of men, members of their union, believe they are leaded. So far as their lay opinion is concerned, these men might be able to attest to the fact that they are leaded, but how far would we be justified in drawing the inference that they were leaded if they were to come here and tell us that in their lay opinion they are leaded.

5508. Mr. CONNINGTON: I take it the position is this: we express at once our financial inability to conduct this inquiry upon the lines that might be demanded from a court of law. We say so at once—that we cannot do it.

5509. DEPUTY-PRESIDENT: You have made that position quite plain to us in connection with Mr. O'Brien's case, and we will, if necessary, call all the doctors who can attest to the health of persons whose names are on your lists.

5510. Mr. CONNINGTON: Thank you.

5511. DEPUTY-PRESIDENT: It may be a very expensive process, but we are determined that you shall suffer no injustice, even if we have to be put to very considerable expense.

5512. Mr. CONNINGTON: Another matter is this: by us getting the testimony of men who ought to have a general knowledge of the trade—I am not saying that any inference is to be drawn from the evidence at all: I will leave that until we have heard the evidence. After all, it will be for the Board to determine what weight is to be attached to the statements made by Mr. Flanagan and Mr. O'Brien. They are statements of what

they have been told. From your point of view they are gathering information which will indicate to you whether other information can be obtained, if you think that it is necessary for the purposes of your inquiry. I am not wishing to be unfair to Mr. Manning in any shape or form, but I want you to know exactly the reservoir that is available, and so much of it as you desire to tap we will assist you to tap. It may be afterwards that if you find yourself unable to check the statements which have been made by Mr. O'Brien and Mr. Flanagan, you will say, "Well, in fairness to some interests we cannot act on that." I can see and agree that that might be a fair view for you to take, but until such time as you reach that stage, I think that it will be of assistance to you and to me to hear Mr. Flanagan's evidence; then, if the Board says, "We have heard Mr. Flanagan and——"

5513. DEPUTY-PRESIDENT: What do you want us to do? Do you want us to hear the details of each case as reported by Mr. Flanagan? That surely will be taking the evidence through Mr. Flanagan.

5514. Mr. CONNINGTON: I agree.

5515. DEPUTY-PRESIDENT: If you tell us that he has collected information with regard to a certain number of men, and that the names of the men and the names of the doctors who attended them will be made available to us, in order that we may subpoena either the men or the doctors to attend upon this inquiry, then we shall be very greatly helped; but if you attempt to get the evidence that only a doctor can give, through the mouth of Mr. Flanagan, then naturally we will not be carried very much further, and Mr. Manning will be prone to object to every question you ask.

5516. Mr. CONNINGTON: I am in entire accord with your view, Mr. Deputy-President, and with that of Mr. Manning, so far as it would appear that I am endeavouring to press Mr. Flanagan to do more than merely in a rough way indicate to the Board that apparently there is room for further consideration here. I mean, if he says "I saw a man, and his arms were black and his teeth were falling out ——"

5517. DEPUTY-PRESIDENT: That is direct evidence.

5518. Mr. CONNINGTON: We will leave it there. It is merely to satisfy you that after all there is some reason for Mr. Flanagan and the man believing that there is something amiss with him.

5519. DEPUTY-PRESIDENT: I do not see why a layman should not be able to identify a symptom of a disease as accurately as the average doctor, and if Mr. Flanagan has examined the mouths of all the members of his union and has found in a certain percentage of those mouths a pigmentation in the nature of the lead line that is to be found in the mouths of those who are poisoned with lead, then I will not prevent him giving evidence on the point.

5520. Mr. CONNINGTON: There is only the one case. He saw a man's teeth discoloured and falling out. I will not press it further than that, because it would not be fair of me to do so. If you think that is a *prima facie* case for you to extend your investigations further, we will endeavour to help you to have the investigations extended. In that rough way I will ask Mr. Flanagan as to his experience, and when his evidence is concluded, if the Board indicates to us how we can be of further assistance with regard to the cases referred to by Mr. Flanagan or Mr. O'Brien, we will gladly render our help; or, if you suggest that merely giving you a list of the men whom Mr. Flanagan has seen will be sufficient, we shall do whatever you wish.

5521. DEPUTY-PRESIDENT: Mr. Flanagan ought to construct a list similar to that constructed by Mr. O'Brien. It will not be admitted as

an exhibit, but it can be preserved for the purposes of the inquiry, and the Board may be able to extract from it such information as will enable it to call doctors, who should be able to attest to the condition of the health of the members of his union.

5522. Mr. CONNINGTON: Yes, but from the union's point of view, unless the union is allowed to make some general statement as to what it believes to exist, they will feel very dissatisfied.

5523. DEPUTY-PRESIDENT: I have no objection whatever to the union indicating its views as to the health of the men generally; indicating the mental attitude that has been created on the part of its members with regard to their trade owing to their experience of ill-health.

5524. Mr. CONNINGTON: And supply a list of the names, without further remarks. We will do it any way you desire to have it.

5525. DEPUTY-PRESIDENT: If you have the list in reserve, and if it is necessary to summon the doctors who know what is the condition of the health of the members of Mr. Flanagan's union, we will summon them also.

5526. Mr. CONNINGTON: Thank you.

5527. You have spoken to a few of your members on your visits?—Yes. On Monday I spoke to the men mentioned in this list.

5528. How many altogether?—I did not count them.

5529. Are they all willing to give evidence here if required?—Yes; those men are willing to give evidence.

5530. Do they all claim they are leaded?—Not all. There are four men there who do not know what is up with them. They complain of nervousness and headaches.

5531. Are they willing to be examined?—Yes. I just have the names of those men, two of whom spoke of the rubbing down and burning off; they say that after that they are always affected; they have no certificates, they have lost no time. I took the men at random; I did not go to the unhealthy man or to the big man, but I went to the man with whom I came into contact in the shop. It is hard to get round about 240 men, and I certainly did not get round that number. Of course, I am known to them, and it was a matter of, "Here you are, Jack, here is somebody here." Whoever it was, it did not matter if he looked 14 stone, I asked him those three questions, and I put his name down. I only stayed 42 minutes there, and I could not get round all the men in that time.

5532. As the result of that you have half a dozen names?—Yes.

5533. Who claim they are suffering, and who are prepared to give evidence to the Board?—Yes. One man said to me—I show it there against his name—that was Walter Carpenter, and I spoke to him on Monday —

5534. Never mind that;—can you prepare a list of the names of your members who claim that they have been leaded or are suffering from the effects of their work?—Yes. If Mr. O'Brien will show me how he has prepared his list I will prepare a similar list for the Board.

5535. DEPUTY-PRESIDENT: And Mr. Flanagan can amplify the list by further inquiries in other circles than that of the Railway Commissioner?

5536. WITNESS: I can go to Randwick next Thursday, that is next pay-day.

5537. Mr. CONNINGTON: I think the President is suggesting that you ask questions similar to those asked by Mr. O'Brien, from all your members, whether in the Service or out of it. It will be very acceptable information to get?—I do not know whether Mr. O'Brien asked these questions. I did not ask him about it, I just thought they would be fair questions.

5538. DEPUTY-PRESIDENT: We may find that the same doctor who has dealt with members of Mr. O'Brien's union has dealt with members of Mr. Flanagan's union.

5539. Mr. CONNINGTON: It may be that there were four or five cases to one doctor, and it will save a good deal of trouble in that way.

5540. Would it expedite matters if you were able to go to these workshops and hand to these men a form to fill up and sign?—Yes, it would save a lot of time if I did that.

5541. Mr. CONNINGTON: Would you, Mr. Deputy-President, make any suggestion that he should be allowed to do that?

5542. DEPUTY-PRESIDENT: You can instruct yourself very effectively in that way, it seems to me, and on the replies you get to those questions a list can be compiled. I think Mr. Woodham has arranged with the Railway Commissioner that Mr. Flanagan should visit the shops.

5543. Mr. WOODHAM: Only on that particular day, but I can get it extended.

5544. Mr. CONNINGTON: That is all I say, that the Board should express a desire that Mr. Flanagan should be permitted to visit any of the shops or factories and make the inquiries.

5545. You will do that?—Yes.

5546. When can you start to do it?—The auditor is in just now for the half-yearly report, but I will do it as soon as I possibly can. I cannot promise anything definite; I would not say I would have it done by Monday when I know there is no possible chance.

5547. With regard to the question of healthiness or otherwise, how does your union view the use of lead in paint?—Our union is made up in a peculiar way. There are bodymakers, painters, trimmers, and blacksmiths. The blacksmiths, trimmers, and bodymakers do not take any notice of it because they do not use it, but the painters are continually growling about the use of lead.

5548. DEPUTY-PRESIDENT: Do not the bodymakers use red-lead?—No, not in carriage-building. There are no joints like there are in engineering. The joints have to be perfect for the carriage-builder.

5549. Are members of your union engaged on the work of motor body building?—Yes, but motor body building is absolutely rough; there is no planing on a motor body because it is all covered with sheet metal. All these sweeps are made up in a frame and the sheet metal goes over it. There is no occasion for anybody to see the joint, the trimming is on the other side. It would not matter if the joint was open an eighth of an inch.

5550. Mr. CONNINGTON: Your men are employed in all branches of the coachmaking and carmaking industry?—Yes.

5551. Of the men following the occupations of coach-painters and coach-painters' labourers, what percentage would be in your union?—The lot of them; we have them all in. There is no other union covering them.

5551½. You have told us that they complain about their work, so far as using lead paint is concerned?—Yes.

5552. With regard to the health of the painters and their labourers, as compared with the other sections of the union, what do you say?—I can always tell a painter when he comes in, without asking him what he is, by his general appearance. They growl generally.

5553. Mr. MANNING: I suppose he is covered with paint?—No; there are plenty of painters who never have a speck on them; they go to work like I am now.

5554. DEPUTY-PRESIDENT: We had a witness yesterday who told us that the painter bore paint from the beginning of the week to the end of the week?—I heard that, and I thought that man exaggerated.

5555. Mr. CONNINGTON: However, you think you can tell a painter when you see one?—Yes, I can.

5556. Apart from that, as secretary of the union, could you honestly say whether, in your opinion, the health of the painters is any more indifferent than that of the other sections of your union?—Yes, I think their health is indifferent. As a matter of fact, there is a man I have mentioned in the list suffering from lead-poisoning; he has a certificate from a doctor in Balmain.

5557. You will put that man on your list?—Yes.

5558. Do they complain as a body at all?—You get complaints from time to time from men that they are suffering from different pains and gastric trouble. Of course, painters have time off that the bodymakers do not bother about.

5559. You are clear on that?—Yes. A painter will come in and you will say to him, "What are you doing to-day, are you out of work?" and he will say, "No, just having a day off."

5560. Are you in a position to say that the painters take more time off than other sections of your union?—I think so. From the book I keep in the office I think more painters call there than bodymakers.

5561. What has the time off to do with their employment?—The nature of the employment gets on their nerves. I have taken time off myself just to wander about in an aimless sort of fashion round the streets.

5562. When you were in the railway service were there any facilities provided for cleaning yourself?—No facilities were provided, but each man signed for a bucket when he went there; he went to the store and got a bucket and signed for that. That bucket was for the rubbing down that I explained this morning. A man generally marked that bucket with his initials.

5563. Were you allowed time at dinner time and in the afternoon to clean yourself?—No, not then.

5564. I suppose you approve of some time being allowed for the men to clean up?—Yes, I think some time should be allowed.

5565. As a matter of fact, used you to do any cleaning up if that time was not allowed to you?—Yes, we used to do cleaning up. No man could go about with dirty hands. Painters are very clean. Every painter I have ever met has always carried a pinch of rope, horsehair made into what he calls a painter's mouse; he carries that as a nail brush. Painters are always cleaning their hands. I never saw a dirty painter yet, and I have worked in the biggest shops in New South Wales. I never yet met a painter dirty about his hands. I have seen dirty painters this way: some men will put a coat on in a continual spray, which will go all over them, and other men will do a job without a splash; but so far as their hands are concerned, I have never yet seen a dirty painter. The men are very clean there.

5566. Mr. WILLINGTON: Could he have the paint on his hands without them being discoloured?—No; I do not know of any colour that he could have on his hands without discolouring the skin.

5567. If you were painting white, it would look almost like his skin, would it not?—No. If a man is rubbing his hands with this horsehair, it gives them quite a healthy glow. I have observed it myself when painting in oil colours, especially if you hold it up to the sun. There is a sort of green tint in the skin produced by this rubbing. A man always has a healthy sort of skin on his hands from it, and white paint would stand out distinctly on the hands of a painter.

5568. Mr. CONNINGTON: With regard to the water you use for washing and cleaning, is that hot water?—No, cold water. No hot water was provided in the Eveleigh shops for washing with. There was a copper there; I could not

give you the height, nor can I tell you how many gallons it would hold, but it was an ordinary-sized copper. A man was in attendance, and you could not take any water from it until the billies were boiled.

5569. Do you think that hot water should be provided?—It would be a help to men, especially in cold weather, to get varnish colour and that filling I spoke of as lead and varnish combined, off their hands. If that gets on his hands it is very hard to shift.

5570. Hot water would be better to take it off than cold water?—Yes. I will tell you what was provided at Eveleigh, and that was soft soap, but we did not like it; it smelt like fish, and the men would not use it.

5571. According to the evidence the other day, they are allowed three minutes at dinner time and five minutes in the afternoon, except when it is dirty paint that they are using, and then five minutes extra is given; hot water also is provided. I understand that the practice at Randwick is to allow the men three minutes at dinner time and five minutes in the afternoon, except when they are using dirty paint, when the period is extended by five minutes. The witness also said that there is always plenty of hot water available at Randwick?—I never worked at Randwick.

5572. It was not the case at Eveleigh when you worked there?—No.

5573. Is it the case to-day?—No. I made inquiries about that on Monday, and they told me the same arrangement for washing exists there. The tubs are there, and each man has his own bucket. I would not speak about the two minutes; that may be so; they may allow two minutes now.

5574. However, you approve of some time being allowed?—Yes.

5575. When it comes to the question of whether the water should be hot or cold, you, as a painter, prefer hot water?—Yes.

5576. May we take it that hot water is generally preferred?—Yes, I should think so.

5577. For cleansing purposes?—Yes.

5578. In preparing your list, you will supply the names of the doctors whom the men say gave the certificates?—Yes. I will prepare my list in the same way as Mr. O'Brien did his.

5579. Coming to the motor bodies, you understand that work of painting?—Yes.

5580. Is there any rubbing-down or sand-papering to be done in connection with motor bodies?—Yes; it is sand-papering all the way through the coach trade. It is a matter of chasing dirt with sand-paper from the time you commence a job until you finish, or until you get the glaze on. You sand-paper first in a motor body after you have rubbed down in the way described here yesterday, on old paint with the pumice stone, the water, and, of course, the sponge. You put your first coat of colour on and commence to sand-paper, and you sand-paper every coat. The difference in that trade and the carriage-building trade is this, that you do not fill up on a metal panel, a repaint job. All the indentations are plastered over with dry white-lead, which is made up of a little gold size and a good drop of turps put in to make it dry quickly. It is plastered over that and square-knifed. It would remind you of a plasterer at work. When that is thoroughly done, the painter gets his sand-paper and rubs the rest of it, and that dust flies in all directions.

5581. And the sand-papering is the job you complain most about?—Yes. I forgot to say that they do that in the railway on the ends of all box carriages—that is LFX, CX—the lavatory type. They call it knifing in the lead.

5582. In the motor body trade is paint used generally with a lead basis?—Yes, that is the finish; it is all a lead basis.

5583. In the railway the tops of the carriages are now painted with some compound?—Yes, I have noticed some sort of a yellow ochre.

5584. It is said to be non-poisonous?—I do not know anything about it, but possibly it is a non-poisonous substance.

5585. When a painter is working either on a railway carriage or on a motor body, is it possible for him to carry on his work without distributing paint over his hands and over his body?—I do not think so. If a man has to keep up to the standard pace he must get some splashes. A very careful man in laying gingerly might not, but he could not carry out a panel in that way. Take an EHO truck with a panel of about 6 feet x 4 feet; a man has to go with one sweep from the top to the bottom to lay that off; he cannot stop half way; you could not do a section of it and stop and go to the bottom. You go from the top to the bottom, and you let it fly out.

5586. DEPUTY-PRESIDENT: Do the painters wear overalls?—Yes, in the Railways.

5587. But do they in all carriage work?—Some of them wear an apron, but most of them wear overalls; not white ones; we use dungarees.

5588. Are dungarees used in order to save laundering expenses?—It is to save your clothes.

5589. But why are dungarees used in preference to white overalls?—The difference is in the trade. In our trade you can wash the oil paint out. I have never done any house-painting, but from house-painters the explanation is that most of the colours are just off the white on to the stone colour or on to the green, and they have a lot of kalsomine; that all washes out. Our colour is combined so strongly with varnishes that it will not come out. It is nearly always red, green, brown, or blue, which would not come out with the white.

5590. Are dungarees washed frequently?—Not frequently. A man will take them home and put them into the copper with a tin of caustic soda, and leave them there until Sunday, and will then wash them out, especially in the fronts, and then hang them out to dry.

5591. How often would that be?—They take them home about every month or six weeks.

5592. Mr. CONNINGTON: Have you done any painting with any paint which has a zinc base?—No, I never used any zinc white.

5593. All your work has been amongst the lead paint?—Yes.

5594. With regard to trade matters generally, you are a journeyman painter?—Yes.

5595. And you know all about the different operations?—Yes.

5596. Are you prepared to answer any question with regard to the trade, or trade matters generally, if required?—Yes, I think I would be competent to answer that.

5597. As secretary of the union, and speaking from your past experience, do you think that there is sufficient sickness amongst your members to warrant a further investigation into their health being made?—I think so. That is my opinion. I think it would be welcomed by the men, too.

5598. Do you think that their objection to the use of white-lead is sufficiently keen to warrant the belief that they honestly think its use should be prohibited?—That is the opinion of the men. I think so. They have expressed themselves in that way, especially since the commencement of this inquiry. Men have given me different references here; one man in particular, from the Railways, referred me to a Commission that was held in London about ten years ago.

5599. Did your union six or eight months ago collaborate with Mr. O'Brien's union for the purpose of getting some legislation introduced?—Yes; I wrote to Mr. O'Brien stating that I was instructed by my union to

give him every assistance with this matter, and to co-operate with him in every way. These were the instructions I received from a general meeting.

5600. And the object of Mr. O'Brien was to try and have the use of lead prohibited?—Yes.

Cross-examined by Mr. MANNING:—

5601. You are the secretary of this union?—Yes.

5602. How long have you been secretary?—A little over two years.

5603. You were out of work for some time at the end of 1918?—I was not out of work; I was out of the Railway.

5604. Was that the time of the strike?—Yes, just after the strike.

5605. I suppose you took a leading part in the strike?—No, I did not take a leading part or I would not have got back, I suppose, but I took a prominent part.

5606. I suppose at that time that whenever you appeared on the scene the men always knew that something was doing?—No, I do not think so.

5607. Have you been an operative painter during the last couple of years?—Not the last two years; I have not done any painting work the last two years.

5608. When did you last do any painting work?—At the Eveleigh workshops.

5609. When was that?—I resigned from Eveleigh on the 30th March, 1919.

5610. What have you done in the way of work since?—Only secretarial work.

5611. I suppose you are well known to the individual members of the union?—Yes.

5612. So that when you come on the scene they know they have got to brush up?—I do not think so. I have not got that opinion of myself. I do not think the men think that.

5613. Well, they know that there is something to be done, which requires the secretary to attend to it?—Probably that would be expected of anybody.

5614. You say that some of the men expressed the opinion to you that the use of white-lead should be abolished?—Yes.

5615. When was that?—That was at a general meeting, when the correspondence from Mr. O'Brien's union was read out. That was the meeting at which I was instructed to inform Mr. O'Brien that I was elected to act on this committee.

5616. I do not want to know anything about the committee. Was it done at that meeting?—Yes.

5617. What was that meeting called for?—The meeting was not called specially to discuss this matter.

5618. I am not asking what it was not called for—what was it called for?—It was a general meeting. The usual fortnightly meeting.

5619. Have you got any minutes of that meeting?—Yes.

5620. Where are they?—In my office.

5621. Will you bring them along?—I will.

5622. Was there any other occasion when there was any expression of opinion about the prohibition of white-lead in paint?—Yes. Since this inquiry commenced the men have been very anxious to know what I have done.

5623. I did not ask you that. Was there any other occasion when there was an expression of opinion in favour of the prohibition of white-lead in paint?—You mean from the union.

5624. I mean, at any time in your hearing was there any expression of opinion about the prohibition of the use of white-lead in paint?—That is, from the union or from the individuals?

5625. I do not care whether it is from the individual or from the union. I asked you was there any other occasion you can mention?—I was explaining——

5626. Never mind what you were explaining. Was there any other occasion?—Yes.

5627. When was it?—I must explain it in my own way.

5628. Will you kindly tell me where it was and when it was?—I cannot tell you time and date; perhaps it was yesterday.

5629. I do not want any perhaps. I want to go into this matter?—I think I should be allowed to explain in my own way.

5630. I want to see what value is to be attached to the statement you have made this morning?—You might allow me to explain.

5631. I will not allow you to explain anything until you answer the question first. Can you tell me any single occasion when there was a word said to you about the prohibition of the use of white-lead in paint, other than at the meeting you mentioned?—Yes, Monday afternoon.

5632. Where?—In my office.

5633. Who by?—W. J. Brown. He asked me to claim compensation——

5634. Never mind what he asked you?—I am giving you a full explanation.

5635. I do not want it. I just want to test it and see the reliance that can be placed on your statements. You have given me one other occasion. Can you mention any other?—I said that the men came generally——

5636. Can you mention any other occasion when there was anything said to you about the prohibition of white-lead in paint?—Continually.

5637. I asked you could you tell me any other occasion when anything was said about the prohibition of white-lead in paint?—It is so general that I did not record it.

5638. That is no answer. Can you tell me any other occasion when anything was said to you about the use of white-lead in paint?—That is my answer, that it is so general that I do not record it.

5639. That is the only answer you can give me?—Yes.

5640. I think you made some mention of illnesses that you had?—Yes.

5641. I think there were three doctors you mentioned who attended you before this last one, Dr. Woolfe?—Yes.

5642. And they were all wrong?—Well, I gave my opinion that——

5643. Never mind what you gave. I am asking you were they all wrong?—I will not say they were all wrong. I say that Dr. Woolfe effected a cure, in my opinion.

5644. Do you mean to suggest that the other men were wrong in what they told you about your illness, and the treatment they gave you?—Dr. Bernardi was absolutely wrong, in my opinion.

5645. Of course, you went to him to find out what his opinion was as an expert?—Because he was my lodge doctor.

5646. And you think he was absolutely wrong?—In my opinion he was.

5647. Who was the next doctor you went to?—I do not know his name, but he was the doctor in the casualty ward in Prince Alfred Hospital.

5648. And he was absolutely wrong?—I said that he diagnosed my case as muscular rheumatism of the back.

5649. Do you say that he was absolutely wrong?—Well, I do not think he was correct, either. I should say he was wrong.

5650. Then we have two of them absolutely wrong. The third one was Dr. S. A. Smith, and he was absurd altogether?—I did not say that. I said——

5651. I am not asking you what you said. I am asking you do you think that his treatment and his diagnosis were absurd altogether?—He simply put the stethoscope to my chest——

5652. I am asking you, do you think that his treatment and his diagnosis was absurd?—I do not know what his diagnosis was.

5653. Do you think his conduct when he was examining you was absurd?—No, I would not think the conduct of the doctor was absurd at any time.

5654. Did you not attempt to ridicule the operations made by Dr. Smith when he was examining you?—No; I hope I did not give the Board that impression.

5655. Did you not intend at that time to hold him up to ridicule for the test which he applied to you?—No, I did not.

5656. And for asking the students to see whether they could detect any pleuritic friction?—No, it was not my intention to hold him up to ridicule; far from it.

5657. The man who put the cap on everything was Dr. Woolfe?—That was the man who effected the cure.

5658. How often did you see Dr. Woolfe?—Twice.

5659. When you first saw him did he remove your clothes?—Yes, he gave me a thorough examination.

5660. What does the thorough examination consist of?—Usually what a doctor does with a stethoscope, and going all over you with his fingers. You lie down and say 99, 99, and all the rest of it when they are looking for lung trouble, I presume.

5661. And that is all he did?—Well, it is four years ago, and I cannot give you the details.

5662. But it was an event which made a great impression on your mind?—Yes.

5663. Was that all he did when he examined you?—I believe that is all he did.

5664. He put the stethoscope over you and asked you to say 99?—That is all the others did.

5665. I am not asking you what the others did; I am asking whether that is all he did?—That is all he did. I was lying down, and I went through all the performances a man has to go through.

5666. Is that all he did in the way of applying a test—to use the stethoscope and to tap you, and to ask you to say 99?—Yes; he tapped me all over.

5667. Will you please answer the question, is that all he did?—Yes.

5668. And that was done on the first occasion?—It was not done by Dr. Bernardi.

5669. Was that done on the first occasion of your visit to Dr. Woolfe?—Yes.

5670. Did he do anything to you on the second occasion?—He did the same thing.

5671. Did he prescribe for you?—The first time, yes.

5672. Were you cured by the time you got to him the second time?—No. I think it was a matter of about fourteen days between my first visit and the second. I was not cured, but he gave me the same treatment.

5673. How long afterwards were you cured?—It took about two months, I suppose, taking these pills continually.

5674. Were you working during the two months?—Yes, I worked all the time.

5675. There was no other examination made of you by Dr. Woolfe than the tapping and the stethoscope that you have already intimated?—That is so.

5676. As to this statement of yours that the men are continually complaining about the use of white-lead, do you maintain that?—Yes.

5677. When have you had discussions with the men about this?—I said a moment ago—

5678. Never mind what you said a moment ago; just answer my question?—Will you allow me to answer in my own way?

5679. I will not allow you to do anything until you supply an answer to my question?—I will answer it in my own way.

5680. DEPUTY-PRESIDENT: When a question is put to you, if you can give a direct answer to it you must do so.

5681. WITNESS: I do not think I can in this case.

5682. DEPUTY-PRESIDENT: Then tell Mr. Manning that you cannot give a direct answer to the question.

5683. Mr. MANNING: I want to draw your attention again to the statement of yours that men were constantly complaining to you about the use of white-lead in paints. I ask you on what occasions those complaints were made?—And I said—

5684. I am not asking what you said. On what occasions were those complaints made to you?—I did not record them.

5685. Can you give us any information as to the occasions on which the complaints were made?—No, they were not recorded.

5686. You have no recollection of when, where, or under what circumstances they were made?—Other than the one that is fresh in my mind, of Bill Brown who called in on Monday afternoon about his compensation.

5687. You have no record?—I did not keep a record of it.

5688. You have no impression?—No, I know that it occurs at all times.

5689. That is all you can tell the Board?—That is all I can tell you. Now that I have tested my memory, I can give you the date. I can give you the name of a man who came in with wrist-drop.

5690. I am not asking you anything about a man who came in with wrist-drop. I am asking you about an occasion, and you say you cannot help me?—He was a painter, and I thought it might help you.

5691. I do not want you to think what might help me; I just want you to answer my questions. You cannot tell us any of those occasions?—No.

5692. You have told us that the painters are the cleanest lot of men in the union?—Yes. I said that the painters I have worked with, and I have worked in the biggest shops in New South Wales, are the cleanest set of men I have worked with, and I never saw a painter dirty about his hands.

5693. Have you ever seen a painter, with his hands covered with paint, smoking cigarettes?—No.

5694. Never?—No. I know of cases where men have been caught washing their hands to have a smoke.

5695. I will ask you this: Have you ever known men, with their hands covered with paint, to be smoking a pipe?—Yes, I have seen that.

5696. And you also mentioned that you have known persons to go and wash their hands to have a smoke?—I have done it myself. I am a cigarette-smoker, and I never had a smoke without washing.

5697. So they would knock off work and wash their hands for the purpose of having a smoke?—Yes. You were not allowed to smoke in the Railway.

5697A. Knowing that, do you suggest that men are not constantly smoking at their work without washing their hands?—I said that—

5698. I am not asking you what you said. I am asking you will you swear that you believe there are not hundreds of occasions when men are painting at their work and smoking without washing their hands?—I do not follow the men, and I would not swear that.

5699. Do you not know it is a positive fact that day after day they are constantly smoking without washing their hands?—I do not know that that is a fact.

5700. Will you swear you do not?—I will swear I do not.

5701. Will you swear you never saw a painter at his work smoking a cigarette or a pipe without washing his hands?—No, I would not swear that. It would not be important enough for me to take notice of.

5702. I am not asking you about the importance of it. You are not a judge of its importance. You spoke about the buckets and the washing facilities provided for the men?—Yes.

5703. Do you suggest that the washing facilities are inadequate?—Not inadequate; I did not say that.

5704. I am not asking you what you said; I am asking you now, do you suggest that the washing facilities are inadequate?—No, but they could be improved upon.

5705. Do you suggest that the painter who went away to wash his hands in order to smoke a cigarette did not think he was going to derive some benefit if the facilities were not adequate?—I did not say that they were not adequate. I do not want you to put anything on to me that I did not say.

5706. I am not asking you what you said. I am asking you do you suggest that the painter you spoke about, who went away to wash his hands before having a cigarette, found the washing facilities inadequate?—No, he would not find them inadequate; he would go to the tap and wash himself in the ordinary way.

5707. Do you suggest that the buckets with which these men are provided, and which they sign for, for the purposes of the rubbing down, are not adequate for the purpose of washing?—They could be improved on.

5708. You have mentioned this spraying, which you say is dangerous to health?—In my opinion.

5709. Have you known any cases where it has resulted in injury to a man's health?—Yes, Alf. Ayre.

5710. Any more?—Yes. I spoke to F. W. Finnon, the other day, and was mentioning that when you objected to it.

5711. Well, I am not objecting to it now. He was affected by the spray?—Yes.

5712. Alf. Ayre is a person also who was affected?—Yes, now.

5713. And you, in your capacity as secretary of the union, examined his mouth?—No. I was there, and he showed me his mouth, but not in an official capacity at all. That was yesterday, when I was there by invitation from the Board of Trade to find this out.

5714. You were not there in an official capacity yesterday?—I suppose it was official.

5715. I do not know what it was. First you say it was not, and now you say it was?—I say I considered myself doing the work of the Board of Trade.

5716. Were you there yesterday in your official capacity?—Certainly; I am always in my official capacity.

5717. Did you examine this man's teeth yesterday?—No; the day before.

5718. Were you there in an official capacity the day before?—Yes.

5719. And you examined his teeth in your official capacity?—Yes, acting for the Board of Trade.

5720. Did you ask him to open his mouth?—No, he showed it to me. I did not ask him anything about it. I asked him those three questions.

5721. Did you form any opinion as to the state of his health from the examination of his teeth?—When I saw his teeth I thought he had lead-poisoning.

5722. Did you, from the examination of his teeth, form any independent opinion as to the state of his health?—No, I simply took his statement; I was too busy to think of it.

5723. What did you mean when you said here this morning that you found his teeth discoloured half-way down?—He showed me his teeth.

5724. Did you form any opinion as to the state of his health from the condition of his teeth?—No, I simply went on what he told me.

5725. Did you form any opinion as to the state of his health, or the condition of his health?—No.

5726. You did not attach any importance at all to the state of his teeth?—Yes, I did; I considered he was lead-poisoned.

5727. Did you ask him when he cleaned his teeth last?—His teeth were clean, as clean as mine, but there was a blue mark half-way down the teeth.

5728. A blue mark across the teeth?—Yes, just like decay.

5729. Did you see anything else wrong with his mouth?—No, I did not trouble to look at it too long.

5730. When you went to these men in the last couple of days, I suppose you told them what you were after?—No. I simply asked them three questions.

5731. When you went to see these men, did you tell them what you were after?—No, I simply asked those questions.

5732. Did you have any discussion with them, and tell them exactly the class of case you were trying to prove?—No, I did not have time for that. There were only forty-two minutes at my disposal.

5733. May I take it that you hurried through them?—Yes.

5734. Did you see them in a body?—No, separately—just wherever they had their dinner.

5735. And you did not give any indication to them as to the class of stuff you wanted to gather from them?—As a matter of fact, some of them paid their contributions. They thought I was there collecting.

5736. You did not give them any indication of what you were after?—Only those three questions. They would know from that that it was for the Board of Trade, of course.

5737. When did you see Carpenter?—I saw him on two occasions.

5738. I asked you when did you see him?—The first time I was there—last Thursday and on Monday last.

5739. Did you this morning say that Carpenter said to you, “I wish they would examine me?”—Yes.

5740. What did you say to him before he said that?—I asked him would he submit himself to an examination by a doctor or board of doctors, and he said, “Yes, I wish they would examine me.”

5741. Was there anybody else present with Carpenter when he said that?—No. Of course the shop delegate with with me—McInerney.

5742. Will you swear you did not see these men present in a body?—Certainly, I will swear that.

5743. You saw each one separately?—Yes. There may have been two together, you know. If two men were eating their dinner together I did not separate them.

5744. But you never saw a group of them together?—No, I will swear that. If I had seen a group I would have got more than I have got.

5745. I think you said you objected to the use of the soft soap which was provided somewhere at Eveleigh, because it smelt like fish?—Yes.

5746. What perfume do you go in for?—None in particular, but not the perfume they had.

5747. I suppose you are a clean operative yourself?—I considered I was.

5748. Had you that reputation?—I could not say that I had that reputation, but I know I was very clean myself.

5749. But you would not say that you had the reputation of being clean?—Men would not take notice. They were all clean in my opinion.

5750. I understand the chief criticism you have to make of the mode in which the painting work is carried out is in connection with the sand-papering?—Yes.

5751. That is where the sting is?—Yes.

5752. Is this correct, that the sand-papering is used for rubbing off the nibs?—Not only for that.

5753. But that is one of the uses?—Yes.

5754. The other is the surface after the burning off?—Yes.

5755. Are those the only two?—No.

5756. What are the others?—One is when the lead is plastered on with the square knife.

5757. Are those all?—Sand-papering is used in coach-painting after every coat of colour up to the quick and glazed.

5758. Is not that rubbing off the nibs?—Yes.

5759. I have asked you that and you said yes, that was one use to which sand-paper was put, rubbing off the nibs. The second one you mentioned was rubbing down the surface after the burning off?—Yes.

5760. And the third is after preparing the surface with the lead paint?—The dry white-lead paste.

5761. How long after the dry white-lead paste is put on does that sand-papering take place?—Next morning.

5762. How long after the coats are put on?—Next day. You let it go eight hours always. You would not sand-paper the same day.

5763. Do you allow any longer time for the paste to dry than you would for the coats to dry?—No; I daresay they both dry in about eight hours. If you put it on this afternoon you would sand-paper it to-morrow.

5764. Are the drying properties of the two things about equal?—No. The sand-paper stopping would have more driers in it than the paint; it would have no oil at all.

5765. What is that?—That is a stopping which is plastered on with a square knife.

5766. That is the paste?—You call it paste and I call it stopping; that is the trade term.

5767. And that, you say, dries quicker than the paint?—Yes, it dries quicker.

5768. Much quicker?—Yes, considerably quicker than the paint, because there is no oil.

5769. Is it in any way different after it has dried?—How do you mean different?

5770. Is it harder, or does it present a rougher surface?—It is rough; it is plastered on with a square knife, and presents a very rough appearance.

5771. After the sand-papering has been applied to it, what is the surface like?—You take everything out. Say you are filling in indentations, you plaster the whole thing over and then take everything off except what those indentations contain—the stopping. That has brought it up to a level surface with the rest of the paint. You take everything off but the indentations or the cracks.

5772. Do you distinguish in any way between that operation of rubbing off of the stopping and the rubbing off of the nibs in regard to the quantity of dust that is caused?—Yes, there would be more dust from the sand-paper stopping than there would be from the nibs.

5773. Much more?—Yes, considerably.

5774. What about the rubbing-down after the burning-off?—Do you mean the sand-papering after the burning-off?

5775. Yes; would there be more or less dust caused then than there would be after the rubbing off of the stopping?—They would be about equal. The difference is that a man would be black with it in the first place, from the burnt charcoal and burnt paint, and on the second occasion he is like a flour-miller.

5776. Never mind about the blackness and the whiteness, I just want to know about the quantity of dust caused by the two operations?—They are about equal, I think.

5777. So you say that the sand-papering of this stopping would not cause any more dust than the sand-papering after the burning-off?—They would be equal, I think.

5778. You said that in your opinion amongst the men you have come across—I have asked you some questions about this already—there was sufficient ill-health to justify the prohibition of the use of white-lead?—Yes.

5779. Have you come to any conclusion on that yourself?—Yes. I have often thought it would be a good thing if they could substitute something else.

5780. Have you come to any conclusion?—That is my conclusion, that it would be a good thing for the general health of the painter if some substitute could be found for white-lead.

5781. May I ask you, have you made any examination yourself of the members of your union—of their mouths, such as you examined Ayre's mouth?—No; that is the first time I examined a man's mouth.

5782. So you know nothing about it except that you have heard men complaining of ill-health from time to time?—That is all I know.

5783. It is not an uncommon thing to notice about workmen that they complain of ill-health from time to time?—No, not generally. A man doing other work would not complain of ill-health unless he was really sick.

5784. You say that you have heard complaints, but you have never investigated them yourself. By the way, you have no medical knowledge of any kind?—Certainly not; I hope I did not attempt to give any. I was not trying to give medical evidence.

(Witness retired.)

JAMES O'BRIEN, recalled, further examined by Mr. CONNINGTON:—

5785. I think we had reached the point, when you were last in the box, when you said you had lead-poisoning on no occasion yourself, only slight attacks of colic?—Once I had a sore on my finger, and was using white-lead stopping, and got a poisoned hand, and lost about seven weeks' work through that. That is the only thing.

5786. Apart from that you felt no ill effects?—When I was a boy at the trade I at first had a touch of colic, but I do not think that was lead-poisoning.

5787. Do you know the feeling of the unions in regard to the use of lead paint?—Yes, I do, because I have asked that question. I will explain to the Board why I have that information. Two years ago the union appointed a committee to go into the question of the dangers of lead, and I was organising at that time. I used to talk to the men at the different jobs, and ask them if they had suffered at all from the effects of lead, and what was their general opinion as regards lead paints; and the majority of the men told me without hesitation at all that they deemed lead to be poisonous, and that they were always pleased when they were working with substitutes.

5788. The document (P) put in by me is a report you submitted?—That is the report of the committee in 1918.

5789. DEPUTY-PRESIDENT: I have no objection to making that report an Exhibit, but it will not carry the other papers with it.

5790. Mr. CONNINGTON: They will carry themselves, when the time comes.

5791. DEPUTY-PRESIDENT: They are notes for your address to the Board?

5792. Mr. CONNINGTON: They are extracts from authors who are recognised authorities on the subject.

5793. DEPUTY-PRESIDENT: It is a fact that the report was made at a certain time.

5794. Mr. CONNINGTON: Yes. The Board has a copy of it, I believe.

5795. DEPUTY-PRESIDENT: It is a report of the Operative Painters and Decorators' Union of Australia (New South Wales Branch) by a committee appointed by its members.

[Document put in; marked Exhibit No. 7.]

5796. Mr. CONNINGTON: You made investigations and read up the works of persons you regarded as authorities, and submitted this report?—That is so.

5797. You are in a position to swear that in compiling the report you conscientiously gave expression to your own views and to the views of those with whom you came in contact, and correctly reported any extracts you had taken from any of the various works you read on the subject?—Yes.

5798. And you are prepared to answer any questions which may be asked of you with regard to this particular report?—Yes.

5799. DEPUTY-PRESIDENT: What is the date of the report?

5800. Mr. CONNINGTON: The only date I have is 1918.

5801. DEPUTY-PRESIDENT: When did the committee return its report?—I would prefer to get that from the minutes.

5802. DEPUTY-PRESIDENT: The report intimates that the union was advised to this effect by a committee of its members on a certain date?

5803. Mr. CONNINGTON: That is so. I will not go through the details, but the witness is prepared to answer any question put to him.

5804. That shows the views of your union about 1918?—

5805. DEPUTY-PRESIDENT: It does not show that. The union might not have adopted the report of the committee.

5806. Mr. MANNING: I think the witness said it represented the views of the men he was in touch with, and it represented their individual views.

5807. WITNESS: It represents the tenor of the opinion of the union.

5808. DEPUTY-PRESIDENT: In effect, that represented the tenor of the report adopted by it?—Yes.

5809. Mr. CONNINGTON: The union adopted the views?—They adopted the report, and made certain suggestions.

5810. With regard to the inquiry, did the union authorise you to be represented here?—They did.

5811. They carried a resolution to that effect?—No; I will have to explain that. When Judge Beeby gave his report on the forty-four hour question he made a certain suggestion. We then appointed a committee to go into the question of obtaining information dealing with the matter of lead, with the intention of requesting the Government to appoint the Select Committee as suggested by Judge Beeby.

5812. DEPUTY-PRESIDENT: But was not this committee appointed in 1918?—But this was as to the second committee.

5813. There were two committees. We have disposed of the committee of 1918, and now are dealing with the committee of 1921?—

5814. Mr. CONNINGTON: The object is to ascertain if the mind of the union has changed in any way since 1918.

5815. WITNESS: That committee was appointed to get information, but no information has been given back to the union, because they know of the suggestions made in 1918; and we simply made a report to get the desired information.

5816. Mr. CONNINGTON: What was the object of getting that information?—To place it before the Select Committee it was anticipated would be appointed by the Government.

5817. To inquire whether white-lead should be used in connection with paints?—Not exactly that. Judge Beeby made a recommendation to the Government that the information as supplied to him, as Commissioner, by the Painters' Union was not sufficient for him to declare that painting was a dangerous trade; but sufficient evidence was given for him to suggest that a scientific inquiry be instituted to go further into the question.

5818. Mr. MANNING: That was the gist of the recommendation?—Yes. Then our union appointed a committee to get information to put before the Select Committee.

5819. Mr. CONNINGTON: When it became known the Board of Trade was making an inquiry, did your union decide to be represented here?—We naturally thought it was the Select Committee appointed by the Government. We did not know it was as it is.

5820. From your point of view, the Board of Trade was the Select Committee?—Exactly.

5821. When you were preparing the case, you did not know what authority might be called upon to determine the question; but the Board of Trade was appointed, and the union let go this other committee and came along here?—We thought then that this was the Select Committee, as suggested by Judge Beeby.

5822. Then the opinion of the union is precisely the same as in 1918?—Exactly.

5823. Dealing with the question generally, are you in a position to say that the opinion of your union is that white-lead should be entirely prohibited in all paints?—Absolutely.

5824. You are sure of that?—I am absolutely certain of it.

5825. Speaking from your own information and experience, do you think that the health of your members is impaired by having to use lead paints?—I do think so.

5826. Do you think there is sufficient sickness amongst them, sufficient ill-health, to justify you in saying boldly that the use of lead should be prohibited altogether?—That is my opinion.

5827. Do you think if the Board inquires into the 120 cases—

5828. Mr. MANNING: We cannot do that.

5829. Mr. CONNINGTON: If it is objected to I will not press it, but—

5830. DEPUTY-PRESIDENT: I do not know how you are going to finish your question, but if you are going to say you think it is desirable that the Board of Trade should get assistance in determining the health of the union by calling the doctors who advised the men, the question would be quite innocent, I think.

5831. Mr. CONNINGTON: What I want to know is, does the witness think, if further inquiry is made on the lines originally suggested here, that sufficient will come before the Board to warrant us in suggesting to you the making of the investigations.

5832. DEPUTY-PRESIDENT: Does he urge the Board to call the doctors who advised the members of his union that they have suffered from lead-poisoning?

5833. WITNESS: I certainly think so. I do not think the inquiry would be correct without it. I do not see how the Board can get sufficient information without it.

5834. Mr. CONNINGTON: Your point is that you really desire the prohibition of the use of white-lead?—I do.

5835. You have worked as an operative yourself?—Yes.

5836. You have had experience of both classes of paint, paint with zinc and lead bases?—Yes.

5837. With regard to lead paints, are you in a position to say they are better for painting inside and outside than zinc paints?—Lead is not necessary to be used inside at all. There are superior substitutes for interior painting.

5838. Have you used those substitutes?—I have.

5839. If the Board, or anyone, desired to know the names of the manufacturers, could you give them?—Yes. I have no desire to advertise them.

5840. For interior work you say there is no necessity to use lead paint?—I am positive from my own practical experience.

5841. From the standpoint of experience, your own experience, has the paint with the zinc base given as good value as the paint with the lead base?—I am only talking of interior work. We will say “non-poisonous” paints, because I do not know if they are all zinc paints, have given a better result, both from the decorative view and durability than lead.

5842. DEPUTY-PRESIDENT: We are very likely to be misled if the adjective “non-poisonous” is used. If you mean that paints that are free from lead give as good effects for inside work as paints that contain lead—

5843. WITNESS: I will say “leadless” paints, instead of non-poisonous paints.

5844. Mr. CONNINGTON: That will meet the case. Now, about outside work?—My experience with leadless paints outside? While I was working at the trade I have to admit frankly lead was the best.

5845. That is for outside work?—Yes. I would like to qualify that statement, because if it stops at that it looks as if that was my opinion now. It is not my opinion now. Since I have been secretary at least one substitute has come on to the market.

5846. For outside work?—I am talking now of exterior work. I have had four years of experience in it, and watched it very carefully, and I am under the impression it is superior to lead for exterior work. That is my opinion now.

5847. The expression of opinion you gave a little time ago was the opinion you held some time ago?—That is so, because this substitute was not then in the market.

5848. And you are of opinion it is quite as good as, if not better than, lead?—I do say so.

5849. Have you worked with a substitute?—No.

5850. Have you seen any of the work done with it?—Yes.

5851. How long is it since it was applied?—Four years. I cannot go further back, but I am quite sure of that. I have the dates when the jobs were done and have watched them all the time.

5852. And you say that after four years the position to-day is better than as if lead-paint had been used?—I do say so.

5853. You have the names of the jobs and can give them if necessary?—Yes.

5854. Can you think of three or four jobs?—I can give you fifteen or sixteen.

5855. You can give the names of fifteen or sixteen jobs done with leadless paint, which have stood the test of time and are in better condition now

than as if done with lead-paint. Is that your evidence?—No, but they are as good. I do not say I can give you fifteen jobs which were done four years ago. I can give you three or four done four years ago; the rest two years ago—and those jobs done two years ago are better to-day in my opinion than as if they were done with lead.

5856. And you have all the particulars should they be asked for?—Yes, if they are asked for.

5857. Have you personally made any experiments with lead-paint as against leadless paint?—Yes.

5858. As the result of your experiments, what is your opinion?—When I experimented, I did so over five years. I took redwood shingles, had them planed, and I glass-papered them down, and did them with the lead, a mixture of lead and zinc, pure zinc, two leadless paints called “Dixon’s white” and “Charlton white.” I have to admit that the mixture of lead and zinc stood the test best.

5859. What was the proportion of lead and zinc?—I was very, very careful as regards that; and at least between 5 and 10 per cent. of the colour would be lead.

5860. DEPUTY-PRESIDENT: What would be the total base?—Zinc.

5861. What proportion would the base bear to the total composition?—95 per cent.

5862. So that 5 to 10 per cent. of 95 per cent. was lead?—No, was zinc.

5863. How much lead was there in the composition?—I will tell you how I did it. I took the zinc paint and added to that a certain quantity of lead, and, judging by the amount of lead, and the amount of zinc, the amount of lead I put in was so small I should not think it would be more than 10 per cent.

5864. Now you are talking of lead?—Yes.

5865. You would not have added more than 10 per cent. of the total bulk of lead?—That is so.

5866. Was that dry white-lead?—No, in oil.

5867. Mr. CONNINGTON: If the paint weighed 100 lb. there would be 10 lb.—

5868. DEPUTY-PRESIDENT: If it weighed 110 lb., 10 lb. would be of lead.

5869. Mr. CONNINGTON: That is what you mean, is it?—Yes.

5870. DEPUTY-PRESIDENT: Do you know if there was any red-lead in the zinc paint you took as your base?—I bought it as zinc paint.

5871. Is there any specification or guarantee given when you buy paints?—No.

5872. Mr. CONNINGTON: It is merely called “zinc paint,” and you take it as zinc paint?—That is so.

5873. In your experiments with paints with a zinc base, leadless paints, as against paints with lead in them, what was your opinion?—The zinc paint did not stand so well as the material with a touch of lead in it.

5874. You told us you made experiments with a paint which was 90 per cent. of oil and zinc, and 10 per cent. of lead?—Yes.

5875. You said that in your opinion it stood better than the pure zinc?—It stood better than the pure zinc and the pure lead.

5876. Better than either?—Yes.

5877. As between the pure lead and zinc paint, as it is called, in your opinion which is the better paint for the outside work?—The lead. I am talking about my experiments.

5878. What did they prove?—That as between zinc and lead, pure, lead was the best.

5879. For outside work?—Yes.

5880. Is there anything further you would like to say with regard to your experiments?—I did this as well: I took a piece of iron about 2 inches wide

and about 14 inches long and made it into four separate portions. I painted one portion with white-lead, one with red-lead, one with zinc, and one with a coating of zinc and lead. I also placed it in water—a kerosene tin full of water—and kept it there for nine months, continually putting water into it so as to keep it covered all the time. I found at the end of nine months when I scraped the paint off, there was no rust under the red-lead. There was rust under the white-lead portion, and there was a very, very faint touch of rust underneath the zinc; and I took it from that experiment the zinc was better than the zinc and lead, or iron.

5881. I think it is admitted zinc stands the effect of salt water better than lead?—That is so.

5882. Do you know of your own knowledge it is so?—Yes. There was a job (which is painted over now) at Watson's Bay, and there was some talk about it at the time. This job was done by zinc-white, and I have gone on a trip to Watson's Bay on a Sunday and specially inspected the job. It has been painted over the last three or four years.

5883. Mr. MANNING: I know there are two hotels there?—This was not a hotel. However, it is painted over now.

5884. DEPUTY-PRESIDENT: Was it a house or a structure over the water?—A house.

5885. Mr. CONNINGTON: However, your experiments led you to the conclusion that lead is the best for outside purposes?—That was the result of my experiments then, but I do not believe that now. I only experimented with the stuff which came on the market.

5886. You believe there is a substitute now?—I am sure of it.

5887. A substitute which, in your opinion, is preferable to lead?—Yes.

5888. Mr. CONNINGTON: A committee dealt with the question in England, and there is a statement here from one of the managers of Berger's, Limited.

5889. DEPUTY-PRESIDENT: We will not give it in evidence through this witness.

5890. Mr. CONNINGTON: I thought the Board might be looking into the question, and it would find some evidence there from Berger's, Limited, on the point.

5891. WITNESS: I would like to add that I had a further experiment on a very much larger scale. I was in the Navy for seven years, and on one occasion they supplied one paint, what we call "one in five." They supplied 1 cwt. of zinc to every 5 cwt. of white-lead. At that time the ships were painted white, with a black hull. All the upper deck work was white. I was in the East Indies at that time, where the heat is intense, and we ran out of white-lead. We were on the Flagship, and the Admiral signalled for a supply of paints, but it so happened that at that time the whole of the ships had run pretty low down in their supply of white-lead and could only supply us with zinc. We painted the ship with zinc, and zinc purely, and with the exception of its slightly cracking the surface was much better because it did not powder. Lead would have powdered during that time, but I have to admit that the zinc did slightly crack.

5892. It has not the body the lead has got?—It has the body to a large extent. There might be a slight difference there. It had as much of the material effects, but for a certain time had what we call "crocodiles," or cracks. Then a very small portion of the underground work, perhaps the wood, would be bare. Naturally it would then take in moisture.

5893. DEPUTY-PRESIDENT: When you speak of a crack do you speak of what corresponds to a "craze" in enamel work?—Exactly.

5894. Mr. CONNINGTON: You have worked as an operative in England and Australia, have you not?—Yes.

5895. From the standpoint of the painter, are the climatic conditions in England any more severe than they are here?—I say just the opposite.

5896. From the standpoint of the painter?—I should say they are worse here than in the Old Country.

5897. Why is that?—The sun, the heat, is much more excessive here than in the Old Country, and naturally the heat takes the oil out of the paint. When the oil is out there is nothing but lead left, and, of course, it powders, and very naturally it powders more quickly here than at "home."

5898. That is your opinion, is it?—It is what I have learned from my experience.

5899. Is rubbing-down one of the procedures usually followed in connection with oil-painting work?—Yes, but in outside work, such as eaves, you do not rub down—you dust them. When you dust them, you are dusting off the dust and the lead.

5900. What do you dust with—an ordinary small broom?—We have a tool we call a duster.

5901. You rub it along the surface to be cleaned, and there are particles which will allow themselves to be removed by this brush?—Yes.

5902. DEPUTY-PRESIDENT: Is the duster a brush?—Yes, it is.

5903. A wire brush, or a hair brush?—A hair brush.

5904. MR. CONNINGTON: Then you think the climatic conditions are more unfavourable here, from a health point of view, than in England?—That is my opinion.

5905. Take the outside of the house: if you are painting that, do you rub down?—No.

5906. What do you do?—You do not find much dust, unless there is a great deal of cobweb, and that is very simple.

5907. Apart from that, you apply the paint on the surface which presents itself?—Yes.

5908. With regard to paint applied to railings (lead-paint) and to the lower portions of dwellings, have you anything to say as to the continuation of the practice of painting these with lead-paints?—I should certainly say that it is most dangerous. I can give you an illustration of it. Around the football ground at North Sydney there is a small picket fence of about 3 feet high. I was at a football match there last year with my little boy, who had a dark coat on. He was too small to see over the top of the fence, and naturally looked between the pickets. When he stood back there were three marks of the picket fence down his coat. It suddenly dawned upon me that this was lead. His hands were covered with it, and the danger of it dawned upon me. I thought that if he had been eating an orange or an apple—as they do at football matches—he had a chance of getting lead into his system because of this picket fence. It is there to-day, because I saw it there three or four weeks ago.

5909. Apart altogether from the prohibition of lead generally, do you think some special precautions should be insisted upon with regard to railings and the lower portions?—I should say people should not be allowed to paint them with lead.

5910. I mean the lower portions of buildings, &c., that people come in contact with?—Yes, that is so—especially fences.

5911. As to washing facilities I suppose you have had experience in house-painting generally?—Yes.

5912. Prior to meals are you allowed some time for cleaning up?—No.

5913. You do that in your own time?—Yes.

5914. Before leaving in the afternoon is there any allowance for cleaning-up purposes?—No. We have made application to the Court on numerous occasions for time to clean up, but it has been refused.

5915. Apart from the question of the prohibition or the regulation of the use of lead, you think there should be some allowance for cleaning-up purposes insisted on?—I do.

5916. With regard to the material with which to cleanse your hands and face, have you any suggestion to make?—I should say the employers should supply the soap.

5917. Is there any particular class of soap, in your opinion, which is best for the purpose?—Oh, no. Why I say the employers should supply it is—

5918. Mr. MANNING: That is more a matter for the Industrial Court.

5919. DEPUTY-PRESIDENT: It might go to the question of precautions, Mr. Manning.

5920. Mr. CONNINGTON: The latter part of the witness' evidence is intended to give some information on that matter from his point of view.

5921. You think there should be soap?—Yes, supplied by the employer; and the reason for that is that it would always be on the job. If it were left to the men it would very seldom be there.

5922. With regard to water, how do you get on in these house-painting jobs?—In old buildings there is never any trouble in getting cold water, but when you take the big jobs in the city water sometimes is only on one floor, generally the lower floor. Now that they are building such huge places of eight, nine, and ten floors the members on the top floor have seldom any opportunity of washing their hands.

5923. There would be that difficulty if hot water were provided?—Yes. They all come down to the paint shop, and if water were supplied there with soap the opportunity would be offered for them to wash their hands. At the present time it is not so.

5924. You think there should be hot water supplied, and soap, and time allowed to clean up before meals and before leaving in the afternoon?—I do say that would be a great benefit.

5925. Coming now to the question of work, I understand your men mostly work five days?—I would not say mostly—I want to be correct. There are a number who work five days, but the majority are working on five and a half days.

5926. You have expressed some opinion to me as to the advantage of five days per week, particularly as it applies to the painters?—I can only—

5927. Mr. MANNING: I think the Board determined not to go into that matter. I forget what was the ruling, but I know it cropped up.

5928. DEPUTY-PRESIDENT: Does Mr. Connington suggest lead would be an acceptable medium if the time were shortened?

5929. Mr. CONNINGTON: I could not suggest that. If a thing is dangerous, then it is dangerous.

5930. DEPUTY-PRESIDENT: If you do not put your case any higher than that, the evidence is pertinent to the inquiry.

5931. Mr. CONNINGTON: For example, supposing prohibition is not provided by the Board—if the use of lead is prohibited there is no necessity for this evidence or for us to have Mr. O'Brien's view on the particular aspect I was going to put before the Board. On the other hand, supposing the use of lead is not prohibited, the witness has some views with regard to having week-ends off which, in his opinion, would to some extent alleviate the trouble amongst the painters. From that point of view, and that only, I thought I had better get the witness to give his views to the Board.

5932. DEPUTY-PRESIDENT: It may be of importance ultimately. The Board may have to recommend that if the exposure is not carried beyond a certain period of time, a certain number of hours in the week, the rest may be reduced to insignificance.

5933. Mr. CONNINGTON: I think it may be a feature. If lead is prohibited, I do not think we have a very strong case as to the five minutes for cleaning-up. We would have to determine that matter elsewhere, and on altogether different grounds.

5934. DEPUTY-PRESIDENT: We will not shut the evidence out. I understand you do not propose to put to this Board considerations that ought to be considered by the forty-four hour Court?

5935. MR. CONNINGTON: No. It is not from that point of view I am putting it to the Board at all. If the use of lead is prohibited, of course we can put nothing at all to you in that regard.

5936. In respect to doing your work in five days, do you think that, failing the prohibition of lead, the risk of serious illness would be minimised? That is, if the men were allowed the Saturday off, the effect of the work during the other days would be reduced?—I think it would be an advantage for this reason, that naturally you are longer away from the trade and there is less risk. If you have a holiday (which you are generally advised by the doctor to have—to get away from the work) of two days in one week naturally a man's health would be built up better than if he had only one and a half days. It is a natural deduction.

5937. MR. MANNING: Would not three days be better?—I do not want to be ridiculous. A number of men have the two days, but I do not know if they think it is an advantage. I am only giving my own opinion.

5938. MR. WILLINGTON: Would you make it compulsory that the painter should not touch a brush during that two days' period?—Yes, certainly; if they are going to be allowed two days off they should not be allowed to touch paint.

5939. Not even a painter's own house?—I would prohibit him working for any employer outside his own residence.

5940. Do you make a distinction between a man painting his own house and painting another man's house?—No, because he is not working for remuneration.

5941. But he would do it by a different method?—No. If he were working for someone else he would be undergoing the same risk.

5942. I am speaking of the act of painting, only?—He does not paint it any more than he can help. You generally find a bootmaker has the worst boots and a painter has generally the worst-painted house.

5943. If he wanted a holiday during those two days, to be away from the paint, you would not encourage him in painting for whatever reason?—That is so.

5944. MR. CONNINGTON: Do the men think that by having freedom from their ordinary work on the last two days of the week, Saturdays and Sundays, it would be in the interests of their health?—That is the feeling of the union on that question.

5945. Prior to the question of working on Saturdays cropping up, did the men have any views on the subject of having the week-end off for health purposes?—I have no information regarding that.

5946. But since this has come along they are strongly inclined to think it would help them?—Yes. They were always in favour of a reduction of hours.

5947. For what reason?—For health reasons. In fact, they got a reduction to forty-four hours for those reasons.

5948. That was about 1904, was it not?—Yes.

5949. How did they get that concession?—They had a strike for increased wages. There were two bodies—the Master Builders and the Master Painters—and one body offered the advantage if they worked forty-eight hours, and they accepted the increase on that condition. There was still one section doing forty-four hours, but a small section worked forty-eight hours.

5950. DEPUTY-PRESIDENT: They cashed the risk, then?—Yes, that is so.

5951. Mr. CONNINGTON: From health reasons the men believe it would be better for them if they had the Saturday off?—Yes, they do believe that.

5952. Have you had experience of ship work?—Yes, in New South Wales.

5953. From the point of view of painters, is there any difference between painting on a ship and painting on a house?—Yes. It is much more dangerous.

5954. That is, painting on a ship is much more dangerous?—Yes.

5955. Will you explain how the danger arises on a ship, as against that on a house?—The cabins on a ship naturally are much smaller than rooms in a house, and the top portion—what we will call the ceiling—are what is called “caulked,” that is, to keep the iron from sweating. It has a very rough surface, and they paint it and then throw cork on it, with the result that it has a very, very rough surface. That is always flatted, and on a number of occasions they flat it with lead. Now they are bringing in substitutes, but the majority are painted with lead, which is made up of turpentine, varnish, and lead, and it is very thin. While they are doing that work they are absolutely covered; they cannot possibly keep themselves clean and there are no washing facilities on board ship. In fact, you cannot get a drink on board ship—you have to go to the shore for that.

5956. Have you worked at Cockatoo?—No, but I have been at Garden Island and have worked for private shipping companies.

5957. And there are no facilities for washing?—None at all.

5958. Is there any time allowed to cleanse yourself before meals?—None at all.

5959. Looking at the work of a painter, for outside work, can we take it there is little or no rubbing-down?—Very little, except doors and windows.

5960. On the outside of doors and houses?—No, they were merely dusted down.

5961. Is there risk in the dusting down?—Yes, there is risk.

5962. Take the side of this building?—No, not on a brick building. There is very little dusting down on gables.

5963. You have to clean the dust off?—On ledges, &c., naturally it is dusty, but not on a big surface of brickwork. With wooden places it is quite different because there are ledges, &c. In a weatherboard cottage there is a ledge every six inches and they have to dust those.

5964. Apart from the ledges, you only put the broom on the other portion?—No, you dust it with your paint brushes.

5965. Is there any particular risk attached to that?—Yes, there is. When you are working with paint you can only get away arm's length from it; when you are on a ladder you are only within 6 inches or 7 inches of the wall. You often stretch out as far as your arm will go, and when you are painting on you will naturally bring the brush towards you—not in all cases, I will admit. If you are painting up and down there is still a spray and you cannot prevent that because the slap of the brush either brings it towards you or you have to sweep it upwards, which brings it on top of you. When you are finished working you can see all over your face very small spots of paint.

5966. No matter how cleanly you may be?—You cannot help it.

5966A. Is there anything else you would like to say?—I would like to say that on inside work in large buildings in the city most of it is done in paint. Quite a large amount of it, with some of the employers especially, is done with paint. Take, for example, the Wunderlich ceilings; they were greatly in vogue a few years ago, and most of those are painted with paint, and they are so decorative that when you are painting them, especially with flat, there is a very strong spray comes from them. That is all overhead work, and the whole time you are working you work exactly above your head. That is

coming down on your face the whole time, and you cannot get away from it; you are breathing it in.

5967. DEPUTY-PRESIDENT: Why should these ceilings be painted with lead-paints?—There is no reason they should, but they are. I have done them myself with lead.

5968. Mr. CONNINGTON: All these things, you say, are part of the objection to lead?—I am saying it is impossible to get away from lead in that case. There is another way in which danger arises. When you are painting interior walls, to make a good job you have to stipple them. You paint the surface, then you stipple them; you simply bung them with this brush, and while doing that you can see the spray, especially if the sun happens to be striking on the wall—you can see all the particles in that ray of sunshine. You are breathing that in all the time, and I am positive it is lead, because you are using lead-colour. I have to admit that to a very large extent that is done away with, by the different substitutes they are putting on now for interior work.

5969. On the question of small sicknesses in the union, is there much of that—is it worth noticing?—Yes, it is. There is quite a large amount of it, although I do not keep records of any men being sick. But I have been in the office continually for the last six months, and when a man is sick, but is not ill enough to remain in bed, he generally goes out for a walk, and it is a funny thing, he usually comes and sees the secretary of the union; and from them I have found quite a number of men who are suffering, merely off-colour. They take perhaps two or three days off.

5970. Do you think there is a good deal of that?—Yes, there is a good deal of it.

Cross-examined by Mr. MANNING:—

5971. You have mentioned a number of experiments you made in regard to the lead-paint, the zinc oxide, and the lead and zinc mixture. I want to find out from you now exactly what that experiment was. In the first place, it was an experiment carried out with red-wood shingles?—Yes.

5972. You first prepared the surfaces by painting them?—Yes.

5973. With regard to the lead-paint, where did you get that from?—On the job I was working on, I suppose.

5974. Can you tell us where?—No, I could not say that.

5975. You do not know where you got the lead-paint from?—I could not tell you that from memory.

5976. Can you tell us who mixed that lead-paint?—Yes, I mixed it myself.

5977. You got the materials and mixed them?—Yes, I mixed them all myself.

5978. Where did you mix them?—At home.

5979. Did you get them for the purpose of carrying out the experiment?—Oh, yes.

5980. One, you say, was only lead-paint?—Yes.

5981. The other was lead and zinc mixed?—Yes.

5982. With regard to the lead and zinc mixed, you say that 10 per cent. of the total body of the paint was represented by lead?—Approximately, yes.

5983. DEPUTY-PRESIDENT: It would really amount to about 9 per cent., Mr. Manning.

5984. Mr. MANNING: We will say 9 per cent. then. Of the remainder about 30 per cent. of the mixture would be represented by moisture, would it not?—Oh, no. I do not know anything about the percentage of moisture in it.

5985. First of all you say there was about 9 per cent. of lead?—Yes, about 9 per cent.

5986. Is that correct?—Yes, I should say so.

5987. Then that leaves 91 per cent. of something else?—It does.

5988. What I say is this: of that remaining 91 per cent. some of it is represented by oils, turpentine, &c.?—Yes, that is correct. I never used turpentine, nor did I use driers.

5989. Then call it liquid. That amount would be represented by about 30 per cent., would it not?—Yes, that is so.

5990. These red-wood shingles were painted by you?—Yes.

5991. How many of them were painted?—I used two for each colour. Mind you, I experimented with other paints as well. I had one side of a weather-board wash-house which got the sun, and I had these shingles nailed on the wash-house, and must have had at least two dozen; I had two of each of these which I am referring to, with the dates on the back when I painted them.

5992. When was that?—It is nearly nine years ago now when I first started to experiment with these paints. I have always done that sort of thing, all along the line. I did not start then for the first time.

5993. It was a habit?—I took a pride in doing that sort of thing.

5994. This particular experiment you carried out, was about nine years ago?—Yes, about zinc-white.

5995. Did you make any other experiments with zinc-white about that time?—No.

5996. May we take it that was the one isolated instance in your career that you have made this experiment with zinc-white?—Oh, no. I was ordered to do it once.

5997. I ask you whether there are any other instances in your career when you have made experiments with zinc-white?—Yes.

5998. Tell me when it was?—The Admiralty gave an order.

5999. I am not asking about an order—I am asking you when it was?—In 1904.

6000. Was there any other experiment made by you with zinc-white?—I carried these experiments on for nearly twelve months.

6001. In 1904?—Yes.

6002. Did you carry them out during any other year?—No, with the exception of nine years ago.

6003. When you were experimenting with zinc-white for the Admiralty in 1904 had you a contract there;—did you use also the lead-paints in comparison?—Yes.

6004. You did not say anything about that to Mr. Connington?—It would take a week for me to tell you all my experiences with regard to painting.

6005. I am saying you did not mention that to Mr. Connington?—I mentioned to Mr. Connington that we painted a ship—

6006. I say that you did not mention the subject to Mr. Connington—the fact that in 1904 you had experimented for the Admiralty?—You have asked me now, and I have told him.

6007. Will you please answer my question. If you refuse, we will know how to deal with it?—I said “No.”

6008. Was the result of your experiment in 1904 laid before the Admiralty?—I do not know about that, but it was laid before the captain of the ship.

6009. And after that was laid before him, did you carry out any further experiments?—No.

6010. Nine years ago you carried out the experiment with shingles, the same experiments over again?—On wood, yes.

6011. On what was the other experiment made?—On iron.

6012. You mentioned an experiment you carried out on iron with the red-lead, the white-lead, and the zinc and lead?—With zinc, and zinc and lead—four different materials.

6013. Whereabouts was that experiment carried out?—Here.

6014. In salt water, or fresh water?—In fresh water.

6015. In your own home?—Yes.

6016. And you found rust under the zinc paint?—It was very, very slight. There was a reddish tinge on the iron. It was rust, but if you have had no experience of that you would just see it.

6017. I want to know did you find rust under the zinc?—There was a slight tinge.

6018. And you found it also under the lead?—Very much so—it was very distinct under the lead.

6019. How big was the piece of iron you used?—It was 2 inches wide and 12 inches or 14 inches long.

6020. What were the colours?—Red-lead, white-lead, zinc, and zinc and lead. I am sure of that.

6021. There was nothing under the red-lead at all?—No.

6022. So the only rust you saw was under the lead paint and the zinc paint?—No, there was rust under the whole three.

6023. Under the red-lead?—No.

6024. One was zinc, another was lead, and the other was the mixture?—There was rust under the three, but none under the red-lead?—That is so.

6025. You were asked about this report which was drawn up by the Committee. I suppose that was a committee appointed by the union?—Yes. The committee was appointed in the year 1918.

6026. I suppose you have the minutes of the proceedings of that committee?—We have the minutes of the election of the committee, and the minutes when the report of the committee was submitted to the union.

6027. Have you minutes of the meetings of the committee?—Yes, but they were kept roughly. However, I can get them.

6028. Will you please get those?—I have them here, I find. [*Handed book to Mr. Manning.*]

6029. I take it at these meetings you considered a number of leading test-book authorities on the subject?—Yes, we did.

6030. These are the whole of the minutes?—I think so.

6030A. There are some here in ink, and then they go on in pencil?— [*Witness explained the minute-book to Mr. Manning.*]

6031. On 13th December, 1918, the committee was appointed?—It was earlier than that, because the minute says that a general discussion followed, and it was decided to have a report on the substitutes for white-lead before arriving at a decision—which we did.

6032. As to these minutes, this report that has been drawn up was drawn up in pursuance of this resolution? You considered the text-books I mentioned to you?—Yes.

6033. Then there was this resolution:—

“After a long discussion it was decided that the secretary draw up a report embodying the statistics as contained in the extracts submitted and from other data available.”

Were you secretary then?—Yes.

6034. And you proceeded to draw up this report which is “B” here?—Yes, that is right.

6035. DEPUTY-PRESIDENT: What is the date of the extract you have read?—It is dated 15th October, 1918.

6036. There seems to have been but one meeting?

6037. MR. MANNING: I think there was another one afterwards.

6038. WITNESS: There is one before that, is there not?

6039. MR. MANNING: That is the one at which this report was drawn up?—Yes.

6040. DEPUTY-PRESIDENT: I observe that the minutes contain this statement:—

"The chairman, on opening the proceedings, emphasised the importance of the question to be considered, and hoped that the deliberations of the committee would be of an exhaustive nature, so that good results would accrue from their labour.

That looks like an initiatory statement?—That sounds like the first meeting.

6041. Mr. MANNING: The point is that this meeting was held and these text-books were gone into, and after discussion it was resolved that extracts be taken out of these text-books. That is what it comes to?—That is so.

6042. Mr. MANNING: And pursuant to that Mr. O'Brien proceeds to draw up this report we have here.

6043. DEPUTY-PRESIDENT: The recollection of the witness is apparently confirmed by a further meeting held on 13th December, 1918, when there was a meeting of the White-lead Committee held. It says:—

"The secretary reported having an interview with the general secretary of the Grand Order of Druids and the secretary of the Grand Order of Oddfellows, who could give no assistance, as no statistics were kept as to the causes of sickness or death.

"Secretary read report compiled from the authorities mentioned at last meeting. A general discussion followed, and it was decided to have a report on substitutes for white-lead before arriving at a final decision."

6044. Mr. MANNING: There is this report, which has been put before the Board, and I want to get the genesis of that first.

6045. You were asked by Mr. Connington about this report, and you said it represented the views, not only of the committee, but also of the members of the union?—They adopted it.

6046. It represented their views, then?—When they adopted it I naturally took it to mean that.

6047. But you mean more than that; you mean that the statements in this report represented the views of the members of the union?—Yes.

6048. There is no doubt about that?—None whatever.

6049. DEPUTY-PRESIDENT: Do you suggest, Mr. Manning, the committee voiced the views of the union before composing their report?

6050. Mr. MANNING: Oh, no. I say that the witness said what was contained in this report represented the views of the members of the union.

6051. DEPUTY-PRESIDENT: By deduction.

6052. Mr. MANNING: Quite apart—

6053. DEPUTY-PRESIDENT: If it were not by deduction the committee must have set itself to find out what were the views of the union.

6054. Mr. MANNING: You will remember a question asked by Mr. Connington to this effect: "Do you know from your association with the members of the union whether they have voiced . . ." &c. He put that form of question to the witness, and he suggests that their views are represented by this report.

6055. That is so, is it not?—Yes.

6056. I take it that this is the view of the members of your union: "Personal cleanliness is very desirable." Is that so?—They believe that.

6057. Do they act on it?—There are exceptions.

6058. Very considerable exceptions?—Well, I suppose they are like anyone else. My practical experience tells me, however, the majority of painters are very clean indeed.

6059. We will see as we go on. The report further says:—

“Personal . . . attention to cleanliness is still . . . and pumice-stone.”

That is what you say they think, is it?—Yes.

6060. In giving evidence at the British inquiry it was stated:—

“Unless you . . . in the world.”

Then there is a paragraph further on:—

“The inhalation from lead dust plumbism amongst painters.”

Do they think that?—Yes, they believe that.

6061. That is a frequent cause of plumbism amongst painters?—That is true.

6062. Then it says:—

“And for obvious reasons . . . attending dust.”

Yes.

6063. “The ingestion of lead through . . . frequent causes of plumbism”?—I believe that bit.

6064. “While every painter knows . . . the fact is that these facilities except in special work are very seldom available”?—Yes.

6065. You say that represents the views of the union and yourself?—Yes.

6066. I take it you do not mean to suggest that your union holds the views which are represented by extracts in this report, by the reading of the text-books?—They took the report as a whole, and it is proved beyond a doubt lead is dangerous. They accept that report by its adoption.

6067. You do not suggest any members of the union went into the figures you quoted?—No.

6068. Did the committee go into them?—The only way they could go into them—

6069. Was by extracting them from the text-books?—That is so.

6070. So it really comes to this, that this report is really a collection of matter which was extracted from the text-books which you had at your disposal?—That is correct.

(Witness retired.)

6071. Mr. CONNINGTON: That will complete our evidence, unless we get some suggestions from the Board with which we may be able to comply.

6072. DEPUTY-PRESIDENT: The Board has a good deal of evidence to call.

6073. Mr. CONNINGTON: Then there will be the lists to be provided by Mr. Flanagan and Mr. O'Brien.

6074. DEPUTY-PRESIDENT: The Board will have in attendance this afternoon Dr. Roberts, who was referred to in yesterday's evidence, and representatives of the Ocean Accident Underwriters' Association of New South Wales. The proposal of the Board is to have before it the whole of the committee of the Underwriters' Association, and to examine that committee as one witness. Some of them have much and some of them have less experience in connection with industrial diseases and the determination of rates in respect to the risks involved. Inasmuch as they may choose to rely upon one another's experience in giving evidence in regard to the methods of rating, we propose to treat them as one witness.

6075. Mr. MANNING: Will they have a spokesman?

6076. DEPUTY-PRESIDENT: They will sit all together, and any person who has the information may answer a question.

6077. Mr. MANNING: It will be called the answer of the committee?

6078. DEPUTY-PRESIDENT: Yes, the answer of the committee. The chairman proposes to act as spokesman as far as he can. We think it will tend

to shorten proceedings. There will be a good deal of duplication of examination if they are called separately, and there will be more responsibility behind the answers that are given, we think, if the answers are given by the committee rather than by the individual.

(Adjourned 12.50 p.m. until 2 p.m.)

(*Upon resuming*)—

WILLIAM EDGAR ROBERTS, sworn, examined by BOARD:—

6079. DEPUTY-PRESIDENT: What are your medical degrees?—I am a member of the College of Surgeons of London; and M.R.C.S. and L.R.C.P.

6080. You are a legally qualified medical practitioner according to the law of New South Wales?—Yes. I am registered in this State in addition to being registered at home.

6081. You have a naval position, I understand?—I am Lieutenant-Commander.

6082. And attached for medical service to——?—I was attached until recently to the Cockatoo Commonwealth Dockyards.

6083. Are you not there now?—No, I have reverted to the “Penguin,” Garden Island.

6084. I understand that the officers at Garden Island are nominally attached to the “Penguin”?—Yes, the Commodore is our chief.

6085. How long were you associated with the Commonwealth Dockyard?—From 15th November, 1919, until the taking over of the dockyard by the Minister the other day—I think it was 28th or 30th of June, 1921. I was more or less “lent” the last few days.

6086. Your commencing year was 1919?—Yes. I was in England in 1918.

6087. Would you give the Board an idea of the duties of the medical officer of the Commonwealth Dockyard to commence with?—One had to be on hand for any accidents which might occur—either myself or my assistant had to be there during the whole twenty-four hours. There was always one of us on duty. Then, of course, we had to be there for any urgent cases of illness, and also to put the employees on the sick list if I thought fit. When they were fit to return they came to the Island, and were supposed to come back a day before and report to me, when I would put them back on duty. In addition to that one had the sanitation of the Island to see to and look after all the dwellings generally, and the residents on the Island; one of my duties also was to examine all the employees engaged in dangerous trades or processes, particularly where lead was employed.

6088. Do you advise as to occupational hygiene?—Only at the examinations. I examined any of the workers in lead, usually every fortnight. When convenient they were sent up in batches of twenty to thirty, sometimes more, and one got through them in a few days, examined the whole lot, and gave advice as to condition. If I noticed a chap was at all off-colour I would go into the question.

6089. Of relief from work, in his case?—Yes.

6090. Or relief from a dangerous process?—As to that, the main thing was to find out if he was leaded. I was there to pick out any cases of lead-poisoning in the early stages.

6091. Did you also examine applicants for employment?—No. I suggested that, but it was not carried out.

6092. It was not a condition of employment that a man should be in sound health?—No, except in the cases of returned soldiers and sailors. I always saw them, but I think that was mainly from the point of view of the possi-

bility of a chap going off through an old wound. Although that was the main idea, I was to examine them apart from any injuries they may have received.

6093. Then there was a periodical routine examination of men who were engaged in what were regarded as dangerous processes?—Painters, painters and dockers, and electricians—all those having any dealings with lead or compounds of lead.

6094. I may say, therefore, that the dangerous processes, recognised as such, were all processes associated with the handling of lead in one of its forms?—There were other things which came in. There was the question of the fumes, &c., in the brass foundry, and that sort of thing.

6095. It would have to be extended to cover metallic-poisoning generally?—Yes. I think that is really what is wanted. Unless a chap is definitely lead-poisoned as proved clinically, and examined by chemical tests, he cannot go on to the hurt list and gets no compensation for it. Of course, there are a lot of other processes which are liable to interfere with the general health, quite apart from lead.

6096. Processes associated with the handling of lead were prominent as dangerous processes at the dockyard?—Yes.

6097. Will you tell us the method of your periodical examination of the men who were handling lead? First of all, at what intervals did you examine them?—Fortnightly. They would come along and pass through a passage where I had a very good light; I would examine their teeth, gums, eyes, and generally the mucuous membranes, and ask each man if he had any complaints to make.

6098. In respect to his health?—Anything at all. Those who had any complaint were put on one side and we went into the matter more thoroughly.

6099. What did you expect to find from your observation of their eyes?—The mucous membranes, whether they were anæmic or not.

6100. The inside of the lids?—Yes. In the same way, looking at the gums inside of the mouth, you get an idea whether a man is very anæmic, because it is shown there.

6101. Did you look for the lead-line on the gums?—Yes.

6102. In what proportion to the number of persons examined did you find that line?—I did not see what I myself regarded as a typical blue line in any of those cases during the year. There was only one typical case of lead-poisoning during my time. There were certainly some very bad teeth and discoloured gums, but certainly no blue lines. Of course, if there was any suspicion I had the urine tested and also gave them advice as to getting their bad teeth removed. Some of the older men's teeth were very bad indeed; one could shake them quite easily.

6103. Did you have the assistance of a laboratory in connection with the work?—No. With regard to the examination of the urine they were always sent to the chemist on the Island, Mr. Pye, who carried out the test and reported upon it.

6104. What did you test the urine for?—For the presence of lead.

6105. Not only for albumen, sugar, and so on?—No, simply for lead. Of course, as far as the other was concerned we could carry out those tests ourselves.

6106. The purpose of Mr. Pye's work was to find metallic lead?—Yes.

6107. And do you say in one case only you found lead?—Yes.

6108. In the whole of the period from November, 1919, to June, 1921?—Yes. I have here a copy of a report sent to the Navy Board. There is only one case of lead-poisoning there, and it is a case of gas-poisoning, a returned soldier. That was in 1920.

6109. The list of diseases is given, and it includes poisoning by lead, and poisoning from other causes. Under the heading of "Poisoning from other causes" there is one case?—Yes, that was the gas-poisoning. It is not put down in that document because that is only a rough copy of what was sent along.

6110. How many entries on this sheet would be entries resulting from examination of men associated with the use of lead? I take it that this yearly return covers all cases that have passed through your hands?—All cases during the year.

6111. Cases derived from the ranks of all the employees of Cockatoo Island?—Yes. Of those there were thirty-nine professional painters and 163 painters and dockers on the list. They would be shown there amongst the various diseases.

6112. How many entries are there altogether on the list?—There were 2,143 for the year. That is the yearly report. I have here the quarterly report which is sent along in typed form. There is more detail here of the cases given in that particular quarter.

6113. DEPUTY-PRESIDENT: In order that the gentlemen at the table my follow you I will indicate what the form contains. It contains a series of ten columns. In the first column are set out the various diseases under the classifications "General" and "Local." In the class of "General Diseases" poisoning by lead and poisoning by various causes occurs. The second column is headed "Cases remaining by last return;" the next column is "Since added to the list;" the next column, "Discharged to duty;" the next is "Sent to hospital;" the next column is "Dead;" the next is "Invalided;" the next column is "Number now on list;" the next column is "Total number of cases since added to list;" and the final column is "Total days sickness from each disease." So in the last column but one we have the number of medical cases that have passed through your hands in the period for which the return is made?—Yes, injuries would occur amongst them.

6114. Under the column "Injuries, general and local?"—Yes.

6115. This return indicates there were 2,143 cases requiring medical attention at the Island in the period of a year?—Yes, 1,920. Of those there were thirty-nine professional painters and 163 painters and dockers—a total of 202 painters on the list for various things.

6116. Of that 2,143, accidents accounted for 492?—That is right. Of course, those were serious accidents. There were a number of minor accidents, such as cut fingers and so on, which are recorded; but they are not sufficiently important to have kept a man off duty; they could be dressed and the man could carry on.

6117. You make return only in respect of accidents or diseases which involve a man in loss of time?—That is it. We have a record of the others which can be seen at any time. They are always kept in case anything should turn up later on. Those cases are duly recorded on forms, a sample of which I hand the Board.

6118. The patient in this instance has been referred to already—C. Black. The record contains information as to the date on which the case became known; remarks, number of days; date off; how disposed of and diagnosis. The name of the patient is given as C. Black, aged 42, occupation "P.D.," which I take to mean painter and docker. He presented himself with a certificate from Dr. Mobbs, of Balmain, who diagnosed his case as one of plumbism?—The certificate was neuritis, due to lead-poisoning. Then I went into the case and queried it; I had an examination of his urine made, which was at first negative, so the chap was not put on the sick list. Then I had a further examination made a month later. That was positive, and then he

was put on the list. I think for some reason or other the first test was negative, but when we got the positive test we put him on the list from the original date.

6119. Your comment is "Diseases of central nerves surface, neuritis, query P.B." That means plumbism, I take it?—Yes. Neuritis would cover that. The other items are really as a convenience for classification in the quarterly report.

6120. You also assist yourself by making a record with respect to his industrial history?—Yes.

6121. You say on this particular card, "Has been painting fourteen years; seven years in Commonwealth Dockyard; employed for the most part paint-mixing?—That is so.

6122. What does "H.P.C." mean?—"History, present condition.

6123. Then it says "Cramps in stomach, nausea, no vomiting, B.W.O." I suppose that means "Bowels well open." Then the next day there is "Acute pain in the left arm running from elbow to shoulder?"—He had been to Dr. Mobbs, who had sent me a certificate. The first time I saw this man I went into his condition, prior to the sending of the certificate.

6124. Then it goes on: "Acute pain in left arm running from elbow to shoulder rendering arm useless. Seen by Dr. Mobbs, who diagnosed neuritis." Then on the 31st March: "Is going to Woy Woy for a week." Then you gave a prescription?—No, I did not. He was under treatment by Dr. Mobbs.

6525. There was no anæmia, no blue line, but teeth very carious?—Yes, and dirty.

6526. And urine minus lead?—That is right.

6127. On 12th April, 1921, "Urine tested positive," and you recorded he should be placed on the hurt list?—Yes, and paid from the date.

6128. On 26th May, 1921, his urine was negative again?—Yes, and he returned to work.

6129. You make a further note, "Can resume," here?—That is so.

6130. He was off until 10th June, 1921, the period of his absence being ninety-three days?—Yes. I have to send monthly reports to the Board, and this is a report I sent to the general manager.

6131. It repeats what I have given, practically?—Yes.

6132. Would the professional painters and painters and dockers have been included in the 492 persons who suffered from injuries?—Not in this particular. These are simply the medical cases.

6133. Mr. MANNING: But the 202?—They are all medical cases; no injuries at all.

6134. They are not included in the 492 cases?—No, they are not.

6135. DEPUTY-PRESIDENT: None of the 202 cases are included in the 492 cases of accident?—No.

6136. So the 202 has to be compared with 2,143 less 492?—Yes.

6137. In the medical cases I observe there are 233 cases of influenza and 399 cases of catarrh. Would that be an ordinary cold?—Yes, just an ordinary cold.

6138. There are 126 cases of bronchitis—I am picking out the high numbers—and 163 cases of diseases of the stomach. What would that designation include?—Ordinary gastric catarrh and gastric ulcer.

6139. Would it include any stomachic derangement?—Yes. In many of those cases, of course, I did not see the man at all; they would probably go sick ashore or at home, and I would receive a certificate from a doctor outside saying the man was suffering from gastritis or from influenza, or as the case may be. I would simply make a note on one of these cards showing I had received a certificate from the doctor, what the man was

suffering from, and when the man came to see me I would perhaps put him back on duty.

6140. What is the rule with regard to absence, as far as medical review is concerned?—They have to get what is called a “sick note.” If any of the employees make any complaint at all they go to the foreman and tell him they are not feeling up to the mark, and he issues a sick note. That has to be signed. It is really a “permit off.” Then I see the men and put them on the sick list. That is the regular procedure.

6141. When a man has not presented himself for work because of sickness, he is asked to provide you with a sick note?—He either writes to his foreman or telephones to the Island, and they send the sick note around to him, and I put him on the list, leaving the disease blank until I hear from the local doctor or the man himself comes up.

6142. And if the man presents himself for work again within three days do you examine him without previous examination by his own doctor?—They are generally sent along to me.

6143. Just to verify the fact the man has been sick?—Yes.

6144. If he has been absent longer than three days you expect him to bring a medical certificate from outside?—Yes.

6145. If he is absent for a longer period still, is there any more careful check?—I used sometimes to go out and see them if no certificate came in or no explanation was made. I would visit them at their homes; but there were very, very few cases—not half a dozen, really.

6146. The next large number is in connection with diseases of the intestines?—Those are the cases one watches for lead-poisoning, because colic is a prominent symptom. Any chap who had trouble in the guts I used to particularly go into his case, because it might be due to lead.

6147. I was going to ask you if in these assessments or computations of cases you could separate, through the occupations, the cases of persons who are classified for industrial purposes as professional painters, or as painters and dockers?—Of course, we have them all on this list.

6148. You have separated them from the grand total, but can you separate them from the minor totals? For instance, take bronchitis, 126 cases; can you say how many of those were cases of painters, or painters and dockers?—I have a rough list here. I only heard late this morning about this question, and hardly had time to go properly into it. I can give you a rough idea. There were twelve cases of bronchitis.

6149. Amongst painters and painters and dockers?—Yes. Of catarrh there are 54 cases; gastritis, 13; influenza, 33; intestines, 1. It is only a rough list made out by my man there, and I have not worked it out in detail. If I had more notice I could have picked these things out for you. They are all there, and it is simply a matter of running through them.

6150. He has picked them out one by one, and then totalled them up?—Yes. I do not know if it is absolutely complete. As I say, I only heard about this at 12 o'clock, and he started on it.

6151. Did you take the list from him before he finished?—I went through the drawer myself and read them out, and he jotted them down.

6152. Did you fail to complete your review of the cards, or did you go through all of them?—He continued it after I left. Whether he really finished I do not know.

6153. Please give us the benefit of the work as far as it was done?—There were 54 cases of catarrh; gastritis, 14; rheumatism, 8; sore throats, 8; influenza, 33; malaria, 4; enteritis, 3; shell shock, 2 (of course, that would come under nervous diseases); dysentery, 2; dental caries, 2; bronchitis, 12; neuritis, 2; heart cases, 4; lumbago, 2; tonsillitis, 4; diseases of the eye, 1; pleurisy, 2; hemorrhoids, 1; myositis, 2; adenitis, 1; piles, 3;

bursitis, 1; colitis, 1; gout, 1; abscesses, 1. I do not think that does quite cover it.

6154. You think there would be more?—There cannot be less than those cases of these classes ruling amongst painters and painters and dockers?—I have got about three-quarters of the way through the list when I had to knock off. One could easily total it up, and if it comes to 202, you have got them all.

6155. The list totals 176. On the other sheet, giving the medical and surgical report for the period between 1st July and 30th September, 1920 —?—That is the ordinary quarterly return.

6156. You have shown 558 patients, including those who suffered from injuries, to the number of 115. You also showed the total strength of the Island?—Yes.

6157. For the same period the strength stood at 4,338, including officers and staff?—That was for that quarter, and on the other sheet you will see the average number for the year.

6158. The average number for the year according to the larger return was 5,120. On the quarterly sheet you have given some additional information with regard to specific cases?—That is so.

6159. And the only apparently relevant matter in these notes is added in pencil to this effect: "Men examined for lead, 120 painters and dockers, 68 professional painters, and 50 electricians"?—Yes, that was during the quarter.

6160. In that quarter, while you were examining the number of men shown in the return, you found none of them to be suffering from lead-poisoning?—No, none.

6161. Are these papers part of your records, or are they transcriptions from your records?—We keep these with the cards, but there will be a copy with the earlier return. They are now in Melbourne, typed out. That one is rough, for our own information.

6162. Can you conveniently leave these records with us, or do you require them?—You can have them.

6163. If you leave them with us temporarily, you can have them at any time you require them?—Very well; I can do that.

6164. Have you had occasion to infer, as the result of your experience with the employees at Cockatoo Dock or Garden Island, that professional painters or painters and dockers are more prone to lapses in health from all causes than men of other classes? They form a large proportion of the workers, the painters and dockers, do they not?—Of course, they are recruited largely from men who are inclined to go from one employment to another. They move about more than the others.

6165. They are less permanent?—Yes, there is more movement going on, from my experience, than amongst painters and dockers.

6166. But you cannot say that you have studied the relative susceptibility to disease of painters as compared with other classes of employees on the island?—No, I cannot say that, except whether the figures would show it or not.

6167. I observe you have not separated the painters in the statement of those employed?—No.

6168. May I infer from that that you personally, as a medical officer, are not acquainted with the proportion that the painters bear to the general full number of employees in the establishment?—Yes.

6169. MR. MANNING: Is that figure 39 intended to—

6170. DEPUTY-PRESIDENT: The figure given the other day was in reference to eighteen months.

6171. Mr. MANNING: It was the daily total, and the average was 39 per day. My recollection is that the larger figure given was intended to be the total employed at other callings.

6172. DEPUTY-PRESIDENT: Yes, I think in other callings.

6173. Mr. ROUTLEY: There were 3,500 other employees.

6174. WITNESS: Of course, the painters and dockers are more exposed to the elements than are a lot of the other employees. Fitters and turners, and those branches, are employed indoors under cover most of the time, whereas the painters and dockers are more out in the open.

6175. Mr. COOPER: And working in the wet at times?—Yes. He has to work also in double bottoms at times, and a lot of the cases of catarrh and rheumatism are due to the working in a double bottom, which is most uncomfortable; but of course it has to be done.

6176. DEPUTY-PRESIDENT: Although their conditions of work are less favourable than those of other employees, you are not able to say they are more frequently attacked with illnesses?—The figures show 200 out of 2,000, or about a tenth. From my recollection I think they are.

6177. As I put it to you, you have no reason to infer that they passed through your hands more frequently than men of other occupations?—I think it is much of a muchness. One gets carpenters, joiners, and all trades. I suppose I do actually see more, if I went into the figures, of the casual labourer who is not a skilled man. They again form a large floating population, coming and going. All the people on the sick list are indexed for future reference and guidance. They are continually changing.

6178. The effects of lead, we may take it, have not been such as to give you any particular concern in your position as medical officer?—No.

6179. Mr. CONNINGTON: With regard to painters and dockers, they do not receive pay while away sick?—Not unless they are suffering from lead-poisoning, and then they are put on the hurt list.

6180. You have only found one case of lead-poisoning in the last year?—One case this year—one case during my time at the island.

6181. And the painter and docker has not been given sick pay on your certificate?—No.

6182. Had there been any appeal against your decision?—I have had one or two questions of my diagnosis.

6183. Is there any appeal?—They can always go to the general manager and can always get a medical certificate from outside. But unless the test for lead is positive they are not put on the hurt list. There is nothing to stop them from appealing to Melbourne through the general manager. I rather fancy there was one case—not lead—put on sick-pay against my recommendation. He appealed to higher quarters.

6184. The only case of lead you have assented to is where a man came armed with a medical certificate?—Yes.

6185. And you agreed?—No; at first I queried the diagnosis, and as a matter of fact rang up Dr. Mobbs and had a yarn with him about it. I told him the test was negative, but eventually, when I got a positive test, I again rang up Dr. Mobbs and he was rather pleased, of course, to think he was right in the first instance. He diagnosed the case clinically as a case of lead-poisoning. As far as I am concerned I must have something more than mere clinical evidence; I must have something to warrant me in putting a man on the sick list. I must have the presence of lead in the system. It does not say he may not have been leaded, or might have it in the future, but must have it at the time I examine him. That is the position I take up.

6186. Unless your examination discloses lead, you do not issue a certificate?—No.

6187. A man may be leaded without proving to you by your method that he is entitled to a certificate?—After all, one must have some test.

6188. I am not disagreeing; I only want to know your views?—Quite so.

6189. A man could be leaded, and this is a safety test that you have laid down. If he had any lead in the system the test would show it?—It is a pretty infallible test.

6190. Dr. Mobbs gave a certificate; you tested the man, and found the result to be negative. Subsequently you tested him again and found it was positive?—Yes.

6191. You made two tests, the second of which disagreed with your first?—Yes.

6192. Was not lead there in the first case?—It is quite possible it may have been.

6193. Mr. MANNING: He did not say it was not there. One was negative and the other was positive.

6194. WITNESS: I have known cases of that sort. As a rule I have two tests made at intervals, so as to be quite sure.

6195. Mr. CONNINGTON: At first you did not find the presence of lead, and you rang Dr. Mobbs and informed him to that effect, and, whatever happened between you, the result was that you subjected the person to another test, and then you discovered there was lead?—Yes.

6196. Mr. MANNING: As a matter of fact, you did not test the urine yourself?—No.

6197. Mr. MANNING: That would probably explain matters; that is after the doctor rang up Dr. Mobbs. It was not his own test, but the chemist's test.

6198. Mr. CONNINGTON: You sent it on to the chemist?—Yes.

6199. In the first case the chemist did not find the presence of lead?—No.

6200. You rang Dr. Mobbs to that effect?—Yes.

6201. Something happened between you, and you later on told the chemist to make another test?—That was following the ordinary procedure after an interval.

6202. And in that second test the chemist discovered lead?—Yes.

6203. Then it is the chemist really who acts upon your suggestion?—Yes.

6204. That is to say, you send those cases which, in your opinion, ought to be sent to him, and he makes the test?—Yes. The idea of that is that if one clinically thinks he is dealing with a case of lead-poisoning, it absolutely clinches the matter if there is any doubt in one's mind. I have seen quite a number of cases of lead-poisoning in the Old Country, where there was absolutely no doubt. I should not worry a bit whether I had tested the blood or the urine, or anything else, in those cases, but it is an absolute safeguard and it gives one something further to hang his opinion on.

6205. DEPUTY-PRESIDENT: I think your note in Black's case shows there was no lead-line?—Well, I think I had a query. He had very bad teeth, as a matter of fact, and I considered at the time that a lot of his trouble was probably due to the absorption from the teeth. As things subsequently proved, he did have lead in his system.

6206. Mr. CONNINGTON: That is the only case where you have issued a certificate for lead-poisoning during your term?—Yes, it is the only case I have put on the list.

6207. Have you sent any cases to the chemist for analysis?—Yes, I suppose during that time I have sent about six or eight query cases, if not more; that is where I have had a doubt in my mind. There could not have been more than that. I examined some the other day before they joined up. They inaugurated a scheme which they really ought to have had right through, of examining people when they come to work, and I examined some six or eight dockers then, and also got their urine tested. They had been employed elsewhere, and were coming to us for the first time.

6208. DEPUTY-PRESIDENT: Do you say that they were all negative?—Yes. They were just joining there from other work.

6209. Mr. CONNINGTON: You had doubts about those six or seven?—I suppose during the whole period I would occasionally pick out a chap going through, and would examine him as to his teeth, and perhaps might get his urine tested. There was no necessity to keep any record of those cases which were negative cases. It is only the positive cases that you record.

6210. How many cases have there been when you have had doubts, and have sent the matter on to the chemist for analysis?—There would not be six at the outside. I suppose Mr. Pye would be able to tell you that. I do not know whether he keeps the record, but he always tests all sorts of things up there, and he may keep a record of the urine tests. I do not know whether he does, but if he does I can easily get the information from him.

6211. However, you think it is near enough to say about six?—Yes, at the outside.

6212. That is not counting the new cases you dealt with the other day?—That is not counting those. It is a new scheme.

6213. Are there any cases of painters, or painters and dockers, whom, as the result of your certificate, the management have discontinued employing?—I do not follow you.

6214. I understand that they are sent to you for examination?—Yes.

6215. And you issue a certificate?—Yes.

6216. And after the receipt of the certificate it is a matter for the management to determine whether the man is to be continued in other employment or not?—I do not know.

6217. Mr. CONNINGTON: I think that is the effect of the evidence, Mr. President.

6218. DEPUTY-PRESIDENT: The witness indicated that sometimes the doctor advises that the man should be put to light employment.

6219. Mr. CONNINGTON: It was at the discretion of the management whether they gave him other employment.

6220. DEPUTY-PRESIDENT: Now, you are asking the doctor if he can remember any case in which he has issued a direction that a man should be transferred from painting to any other light employment.

6221. Mr. CONNINGTON: Yes, or the management could exercise a discretion as to whether it gave the man any further employment.

6222. Mr. MANNING: How on earth can this doctor say what effect it would have on the minds of the management.

6223. DEPUTY-PRESIDENT: You can only ask the doctor whether he has recommended that men should be transferred from painting to other employment.

6224. Mr. CONNINGTON: Have you during your term recommended that certain painters, or painters and dockers, should be given other duties?—I do not remember any specific cases, but I can tell you this, that I have recommended spells in the case of painters and dockers working in double bottoms, particularly the submarines. We had a few cases of chaps collapsing, but I cannot blame lead for that; I blame simply the conditions of the confined spaces, as we call them, in which they are working, and the hot weather and the smells. I do not know whether you have ever been in them, but these double bottoms are very nasty. They usually have pipes leading down there and exhaust fans to catch and keep the air there, but even so the air is pretty nasty. As a rule the foremen are very good, and they allow the chaps to come up and have a breather at intervals.

6225. Have you any records of those cases?—No, but they have come along to me, and I would simply give them something to buck them up, and would give them permission to go home—a spell for a while. There were one or two cases in which I suggested to the foremen that they might give the chap a job somewhere in the open air. I remember one case particularly; I cannot

think of his name now, but he was a returned soldier, and he had had malaria, and it knocked him up pretty much, so he was changed to another job. It was too much for him. As a matter of fact, any chap who works in double bottoms needs to have a pretty stout stomach; it is pretty nasty work.

6226. Generally speaking, I suppose there is a risk of lead-poisoning in the case of every man working with lead-paint?—Yes, there is a risk, certainly.

6227. And a man might be affected and go on for years before he would be incapacitated?—Yes, that is quite possible.

6228. Is there, in your opinion, any way in which the risk of poisoning can be altogether guarded against?—If they take the precautions laid down and take care, there is no reason why they should. Of course, there always will be, I suppose, a small percentage of people who will be leaded under certain conditions, but I do not think so under the conditions under which they work.

6229. I do not mean under the conditions at your place?—Anywhere.

6230. Mr. MANNING: The doctor can only speak of the conditions where he has worked. He cannot speak, and has not attempted to speak, about the conditions elsewhere.

6231. Mr. CONNINGTON: We have the evidence that at Cockatoo it is usual to allow the men a few minutes before dinner and some minutes before they finish in order to clean up?—Yes.

6232. I do not know whether hot water is provided, but soap is provided and a washing place?—Yes.

6233. And in addition to that you give them a drink of orangeade?—Yes.

6234. Do these precautions minimise the risks the men take?—Yes, absolutely.

6235. Without those precautions, what would you say?—Without those I think they would have a very good chance of getting leaded. If their hands were covered with various paints, and if they did not wash their hands, they would take the paint in with their meals.

6236. Is that drink of orangeade that you give them a protection?—Yes; it is quite efficient in itself if it is taken regularly to protect them.

6237. Which is the most important in your opinion, the provision of means to cleanse or the drink?—I think both are equally important. Really, the important thing is the washing of the hands. Some of them are more or less careless; but having the orangeade gives them an additional precaution if they do not clean their hands. A combination of the two has been found best in most works all over the world.

6238. You suggest the whole formula for the case?—Yes.

6239. DEPUTY-PRESIDENT: What is the prescription on which the orangeade is dispensed?—We make it up in the dispensary in a concentrated form, and it is issued to the foremen.

6240. Can you tell us the ingredients?—Roughly, it contains diluted sulphuric acid and tincture of orange. The tincture of orange gives it quite a refreshing taste and makes it a refreshing and a pleasant drink.

6241. How many drams of this diluted sulphuric acid would there be?—I cannot remember the exact proportion at present. They are given a wine-glass full. It is simply a weak dilution of sulphuric acid.

6242. What is the chemical effect in the stomach?—The chemical effect is to combine to make an insoluble sulphate of lead.

6243. Something that will be excreted?—Yes. In the ordinary way the lead that is taken is absorbed, and the effect of the sulphuric acid combined with that is to produce an insoluble salt which is simply passed out.

6244. Mr. MANNING: In other words, the orangeade drives out the green paint?—Yes.

6245. Mr. CONNINGTON: 2,143 cases are cases for which you have issued certificates?—Yes. The cases are all put on the list.

6246. Those are cases which came before you, and you issued certificates?—Yes, they are all cases of men who were off time. Of course, there were other cases besides.

6247. This was either through accident or sickness?—Yes.

6248. Of that number, 492 were pure accident cases?—Yes, serious accidents.

6249. In other words, something like 1,600 cases of sickness were dealt with?—Yes.

6250. And of that number 202 were painters or painters and dockers?—Yes.

6251. Have you any record of the actual number of days lost by the 1,600 or 1,500 cases?—It is on the sheet.

6252. The information is on the sheet as to the actual number of days lost in each case?—Yes.

6243. And I can find the number of days lost by the 202 cases?—Yes.

6254. DEPUTY-PRESIDENT: Is that so? Is the time lost in relation to the 202 shown there?—It can be worked out.

6255. Mr. CONNINGTON: Can I work it out from the paper?—No, you cannot do that.

6256. DEPUTY-PRESIDENT: You have not the information at the present time?—No.

6257. Can it be worked out conveniently?—Yes, you can get the approximate average.

6258. Will you proceed to take out the number of days' time lost by the 202 cases?—Yes, I can get that for you. It means going through those cards for the year.

6259. Mr. CONNINGTON: Have you the number of persons employed?—Yes, they are on the sheet.

6260. DEPUTY-PRESIDENT: Not of painters, but the number of all employees. We have the number of painters employed from Mr. Shearman.

6261. Mr. CONNINGTON: With regard to this examination you submit the employees to, what classes does your fortnightly examination cover?—Professional painters, painters and dockers, and electricians.

6262. What is the rule?—They are sent along by their foremen in batches, as convenient, of twenty or thirty or forty at a time. They would come through one door and I would see them in the passage, and I would put on one side any doubtful cases.

6263. Does it mean that you have one day in a fortnight upon which you make an examination of the painters and dockers and painters then in the employ?—Yes, as convenient. Of course, it may not be actually the fourteenth day, but it is approximately twice in the month.

6264. The test is of the men who may happen to be in the employ on that particular day?—Yes.

6265. It may be the only day they are working for you?—I do not know that. You mean to say, a chap may not be there on that particular day?

6266. Painters and dockers are casual employees. Fifty or 100 men come on between dates, and have gone again before the date swings round?—I suppose that is quite possible.

6267. It is not the rule that every employee must present himself every fortnight for examination?—Yes; all those working in lead have to; they are told off to. All those having to do with lead at all have to come along and see me.

6268. What it means is that some day a fortnight all employees who are then working as painters or as painters and dockers or as electricians show themselves up before you for examination?—Yes.

6269. How many do you examine in a day?—It depends on how many they send along. The examination may extend over two days. I have seen as many as sixty or eighty at a time. That is a mere detail; it is just as easy to do sixty as twenty if you have a routine way of doing things.

6270. You do not submit them to a thorough examination unless they complain of being ill?—It is quite sufficient to bowl out anything like definite lead-poisoning. Any chap who has a complaint can make it, and if there is any suspicion at all that particular chap is put in another room and gone into more carefully.

6271. They pass by and you look at their teeth and into their eyes to see if there are any indications of sickness?—Yes.

6272. If not, he passes through?—Yes.

6273. But unless the men actually complain you rarely interfere?—I often used to take chaps out of the line and put them into the other room, and look for more details, and tell them to get their teeth out—especially the older men. Their teeth are in a terrible state. The younger men are better in that respect, they do look after their teeth, and they are far less trouble in that respect. Some of the older men had very rotten teeth, which is in itself a cause of ill-health after all. It is quite liable to make it look like a case of lead-poisoning as well as anything else.

6275. MR. MANNING: I accept the evidence of this witness as it stands, but I would like to ask him one question.

6276. Of the 202 painters and dockers, would it be correct to say that that number includes some people who come up more than once?—Yes. As a matter of fact, one man was on the list three time during the year.

6277. DEPUTY-PRESIDENT: Did you count his as three units?—Yes.

6278. MR. MANNING: Three times in the one year?—Yes.

6279. Can you mention a case of a person you counted more than three times?—No, I do not think there was one case of more than three times. There were some twice in the year, but not many.

6280. Would you say that three times in the year was an unusual thing?—Yes, unusual; two would be more frequent. There may have been one case four times, but I am not quite sure as to that.

6281. Twice you say would be a working rule?—Yes.

6282. For, say, something less than 50 per cent. of them?—Yes.

6283. At any rate, you would say frequently one might find instances where the same man has gone up twice?—Yes, particularly, of course, a painter and docker. They are more exposed to the elements than other people, and they are often up for catarrh, colds, and so on. They are off for two or three days at a time.

6284. DEPUTY-PRESIDENT: What you might describe as indisposition?—Yes. It is not what we call catarrh, but it is the service term, which covers a multitude of things. There are a lot of minor complaints shown under catarrh, because it is a very convenient term. Your term "indisposition" would better describe it, but that happens to be the service term, and we use it. Catarrh really is a term covering minor indispositions.

6285. It is the n.e.i. of this schedule.

6286. MR. CONNINGTON: With regard to the 202 cases, that means that there have been 202 men, either painters or painters and dockers, who have had certificates issued to them. There may be the same man who has had two certificates in that time and three certificates?—Yes.

6287. With regard to the other 1,300, would that represent men who have had certificates issued to them once, two, or three times also?—Yes. If a

man is issued with a card he goes on the sick list. During that year he may be on two or three times.

6288. Mr. MANNING: Where do you get the 1,300 from?

6289. Mr. CONNINGTON: There are 202 painters and 492 accident cases out of a total of 2,400.

6290. A record is kept of the number of certificates issued, and you have deducted those issued to the painters and painters and dockers?—Yes.

6291. It is just a record of the certificates issued?—Yes.

6292. It is 202 painters and painters and dockers, 492 for accidents and the remainder for all other employees?—Yes.

6293. Does that include the clerical staff and officers generally?—Yes.

(Witness retired.)

CHARLES MONTE MONTEFIORE, HENRY GEORGE LACEY HARRISON, ROBERT SAMUEL CHARLES KIMPTON, DANIEL JAMES LOCK were sworn, and examined as under:—

6294. DEPUTY-PRESIDENT: What is your position, Mr. Montefiore?—I am the general manager of the Ocean Accident and Guarantee Corporation in Australia.

6295. How long have you been in that position?—In Australia between eleven and twelve years. I was ten years in New Zealand.

6296. Are you the chairman of the Accident Underwriters' Association?—Yes. I do not want a mistake to occur, and I want to mention that we hold purely honorary positions, and it must not be understood that either my colleagues or myself thereby necessarily represent the united opinions of the association as a whole, because there is a very sharp division of opinion very frequently there. We are willing to give all the information we can.

6297. Very well. We will take the information you can give us, subject to that reservation?—I wanted that to be distinctly understood.

6298. What is your position, Mr. Harrison?—Local manager of the North British and Mercantile Insurance Company.

6299. How long have you been in that position?—Nearly three years.

6300. That is in New South Wales?—Yes.

6301. What is your position, Mr. Kimpton?—Manager of the accident branch of the Queensland Insurance Company, Limited.

6302. How long have you been in that position?—Just over two years.

6303. What is your position, Mr. Lock?—General manager for Australia of the English Insurance Company, Limited.

6304. How long have you been in that position?—Twelve months.

6305. Have you had longer experience in New South Wales in any other position?—Yes, I was twenty-four years with the Northern Insurance Company, Limited, in New South Wales.

6306. Mr. Montefiore, I understand that you gentlemen are the executive council, or the directing council, of the Accident Underwriters' Association of New South Wales?—We are the executive committee.

6307. In that capacity do you review the rates for the year?—Yes, we review the rates if it is necessary, according to the variations in the legislation; then those are brought before the general association, and they are adopted.

6308. Only when there is a change in legislation?—Or when there is a request from a member owing to certain circumstances as to whether a rate should be varied.

6309. That is, in the light of experience, the executive committee of the Underwriters' Association makes suggestions with regard to the variations in ratings?—Yes, that is done at any time.

6310. Is there one particular occasion upon which you make a grand review of the accident insurance rates?—No; only when there is an amending Act.

6311. So that it may happen that a committee for the year does not review rates at all?—Only certain individual rates.

6312. And then only on a suggestion from a company which is a member of the association?—Yes.

6313. Mr. HARRISON: From a company or from a direction of a general meeting.

6314. DEPUTY-PRESIDENT: Have you had occasion, Mr. Montefiore, to review the rates fixed with respect of painters under the Workmen's Compensation Act?—No, only when we reviewed the whole of the rates with the coming in of the new Act, which increased the compensation from half to third.

6315. That was in the year 1920?—Yes, and on that occasion we did not exactly follow our usual procedure. The Act came into force at a moment's notice. It was gazetted, and had to come into force immediately, and it was impossible then to take each individual trade as we might have done, and therefore an average ratio of rate was made on the whole.

6316. That is, a percentage increase was added to all of the rates?—Yes.

6317. A percentage that would have some relation to the added responsibility that was cast upon the companies by the new legislation?—Yes.

6318. Mr. HARRISON: The whole basis of it was that the compensation was increased in an exact manner, and the rates had to be increased in due ratio—not for any particular trade, but for all trades.

6319. DEPUTY-PRESIDENT: Do you say, then, that the percentage of increase in compensation was the percentage of increase in rate, Mr. Harrison?—No, but the increased rates represented the percentage increase in the compensation.

6320. Did you then consider in relation to painters particularly, Mr. Montefiore, whether experience indicated that the rate should be otherwise altered?—No. It was mentioned, of course. The men who are doing the leading business naturally met one another and discussed it, and so on, but we did not consider that the painters' liability was increased at all by the inclusion of the lead-poisoning.

6321. But the lead-poisoning had been a compensatable risk?—Yes, for some three or four years.

6322. Since 1916?—Yes, but the experience has not been that it has added anything appreciable to the risk or liability.

6323. That is what I want to ascertain from you. Insurance experience since 1916 does not indicate that painters are a class of employees who ought to be rated specially on account of lead-poisoning or on account of the risks of their occupation?—Well, I do not know—

6324. Mr. LOCKE: I do not think any one of us could give a direct answer to that, except from our own personal experience. Many companies have more or less small businesses, and they are not in a position to give you any facts at all. The larger companies may possibly handle this particular class of business, and may be able to prove from statistics exactly what you want to know, but no one of us here could answer that for any fellow-member, because we have not access to their records.

6325. DEPUTY-PRESIDENT: Nor have you reviewed their experience as indicated by records submitted to you as a council, Mr. Montefiore?—

No, they would not submit them. They are given in globo. Really the only statistics they have are the statistics as a whole of the workmen's compensation business. The rates for the individual trades or collection of trades, such as painters and builders, and so on—cognate trades which we virtually put into a group—are the results of the experience of various men like ourselves and our predecessors and so on, who have met together and have compared what has been their experience.

6326. MR. HARRISON: As far as actual rates are concerned, painters are charged a lower rate than other building trades.

6327. DEPUTY-PRESIDENT: Can you explain that position of things, Mr. Harrison?—On the particular basis that experience has been more favourable with those than with the others.

6328. MR. MONTEFIORE: And for the further reason that in the total wage sheets of painters *per se*, taking the painting trade by itself, and not with the building trade, there is a large amount of wages, and the rates are calculated on the amount of wages. A large amount of non-hazardous business is carried on by painters, such as in painting doors and windows, where there is not much danger; as against that we have had heavy claims with regard to men falling from heights, and so on. Taking it all through, and basing the rates right through on averages, as they should be charged on averages, we are able to do the painters at a lower rate.

6329. DEPUTY-PRESIDENT: So that, Mr. Montefiore, on the whole experience, the general risks in the case of the painters are rather less than the general risks of all other people employed in the building trades?—I should say so, as far as I am personally concerned.

6330. Can you speak with regard to your own company, and tell us what their experience of lead-poisoning amongst lead painters has been?—Of course, the Act did not come into force until 1916, but for twenty odd years the corporation has been doing sickness as well as accident policies under the Employers' Liability, and during the latter end of that time our doctor, who has been with us the whole time, advises me that only five cases of lead-poisoning have come before him

6331. Amongst painters, or amongst employees of all classes?—Amongst painters, I should say. I cannot turn up those records, because they have been lost amongst a multitude of other claims, and there is nothing to distinguish them. In the last three or four years I had three claims made for lead-poisoning amongst lead painters. One was a young fellow, and when he presented himself to us for examination we discovered he was not suffering from lead-poisoning at all. It was a camouflage. We had two other cases of elderly men.

6332. Cases of true lead-poisoning?—Cases of lead-poisoning. In each case of lead-poisoning the period of disablement ceased within a few weeks. I could not tell you what it was exactly from memory, but I should say from five to seven or eight weeks.

6333. So that the drain upon the company, so far as compensation in those cases was concerned, was insignificant?—I only wish our other experiences were the same.

6334. Can you give us your company's experience, Mr. Harrison?—There is only one instance that came under my notice of a man who died from lead-poisoning this year. That is the only one I know of in the experience of my company in New South Wales, and in the records of the company in New South Wales. That man, according to all the evidence that came before us when we dealt with the matter, had been gradually acquiring this lead-poisoning over the past ten or twelve years. He had three employers during that time, and two of those told us that it was owing to his dirty habits in never washing himself, and eating his food with his hands covered with

paint, that he got into this condition in the first instance, and he had never been out of it. It took a period of something like twelve years before it finally resulted in his death.

6335. Are you speaking in relation to painters only?—Yes, an actual painter.

6336. Your experience with painters is not that of persons exposed to lead-poisoning?—No; this was a man who was a painter; practically all the time during the period I have referred to he was a painter. I understand that when he was not painting he might do an occasional bit of carting, but generally speaking he was employed by one or two suburban contractors in painting.

6337. Does your company do an extensive business with employers, Mr. Harrison?—Not in that class. We do a moderate business, but I would not call our business a representative one in that class.

6338. Is your business a representative business, Mr. Montefiore?—Quite.

6339. It does a very extensive business with employers?—I know we do a large business. I would not like to compare it with others, but it is admitted to be one of the leading companies.

6340. Will you give us your experience, Mr. Kimpton?—For the two years and three months I have been here I have had no cases of lead-poisoning come under my notice. Our experience in that respect has been a very good one apparently. We have a very fair average business—in fact, a very large business. I do not remember a single instance of a painter suffering from lead-poisoning during the past two years at least.

6341. And what is your experience, Mr. Locke?—I have had no cases at all come under my notice.

6342. Do you do an extensive business?—No. The company I am with only just started in Australia to do business. The company I was with before did a fairly good general business, but not a large business, with regard to the painting trade. We have never had any claims during the time I have been in the business, extending over a period of about eleven years.

6343. Mr. MONTEFIORE: I might add that this morning I called round on a number of the companies doing a leading business in this respect, and their experience has apparently been the same as my own. I wanted to have their ideas before I spoke here.

6344. DEPUTY-PRESIDENT: Can you suggest the names of companies, Mr. Montefiore, that would represent the bulk of the business in this particular line?—It would be rather invidious. I am afraid I might leave somebody out.

6345. Mr. LOCKE: I think you might take sufficient notice of Mr. Montefiore's business. I think he is a little too modest to say what his business is, but his is one of the leading companies here, and his experience should be invaluable.

Examined by Mr. CONNINGTON:—

6346. With regard to your own company, Mr. Montefiore, can you tell me any employer of painters who is insured with your company?—I had Sandy & Co., but I am not sure whether I have them now. It is very hard to remember them now. I do not get all the cases, except when they come before me. I think I had a great number of the leading members—Alexander Dean and Sons, Sandy & Co., Althouse and Geiger. I have a wretched memory for names, but I dare say I could give you twenty or thirty if I looked them up.

6347. That is all you can remember at present?—Yes.

6348. If you can get a list you are prepared to come and tell us about them later?—Yes.

6349. You take the view in quoting the rate that there is more likelihood of a carpenter falling from the roof when he is fixing the rafter than the painter who usually comes on after the house is erected?—I would not like to say that. We have had some very serious accidents. Althouse and Geiger had two men fall from a building 250 feet high, if you remember. There are a large number of cases. If you eliminate the large number of men who are working on the ground, or doing signwriting, and that sort of thing, I should imagine that the claims would be quite equivalent to those of the men working on the outside of the building.

6350. That is to say, the painter on the roof would have as much risk as the carpenter on the roof?—Yes.

6351. But in assessing the rate you assume that a painter would be in places of greater safety for longer periods than the carpenter?—Everything is done on an average. The rates are so much on a hundred pounds of wages expended in the trade. When you take a painter, for every £1,000 he spends on wages there will be a certain proportion of those wages expended on them who are not in a hazardous position. From that point of view, the painters are better. As against that there are certain others of those men who are employed in very hazardous positions, equally as hazardous as any man employed by a builder.

6352. You strike an average rate?—Yes.

6353. And you say that the painter, as compared with the carpenter, is a better risk from your point of view, because the number of accidents are fewer and the risks less?—Yes.

6354. Boiled down it comes to this, that you think that the painting trade generally is carried out under safer conditions by the operatives than the trade of a bricklayer or a carpenter?—Certainly not a bricklayer. You get carpenters who are only employed on the ground floor.

6355. What is the rate your association charges with regard to painters?—I think the rate was 26s. 6d. on £100 of wages.

6356. And 30s. for other people?—Yes.

6357. Mr. MANNING: I can give you the rates, if you want them.

6358. Mr. CONNINGTON: I want to get that from the witness, because I want to see what his knowledge is on these things.

6359. Mr. MONTEFIORE: I cannot remember all these little things, you know.

6360. Mr. CONNINGTON: It is 26s. 6d. for the painters and 30s. for the others?—Yes, you can take that as the rate at the present time, that is with the new Act.

6361. I can quite see that you may not be able to answer these questions?—I am only here to give you any information I possibly can. I am not trying to fence with you.

6362. If any of your committee will answer where there is a doubt, we will accept it as evidence?—Quite so.

6363. DEPUTY-PRESIDENT: And those rates cover the risks in respect of industrial diseases as well as accidents?—Anything at all under the Act.

6364. Mr. CONNINGTON: Did the introduction of this 1916 Act make any difference in the relative or the comparative position of painters with other sections of the building trade?—No, I have not found that it did.

6365. In your rates, I mean?—No; there was nothing added at all for the disease.

6366. Because of that 1916 Act you added nothing to your rates?—No.

6367. The 1916 Act made lead-poisoning an accident for the first time. Do your policies cover accidents only?—No, they cover everything included in the Workmen's Compensation Act.

6368. DEPUTY-PRESIDENT: Mr. Connington, you need to be a little more exact, yourself. Lead-poisoning was not made an accident, but it was made

a compensatable risk. Your question, therefore, should be framed in this way: did you, because of the increase in compensatable risks under the law of 1916, increase your rates.

6369. Mr. CONNINGTON: I will adopt that as my question?—No, we did not. No increase was made for painters by reason of that lead-poisoning. Nothing was added for that.

6370. I suppose you would hardly be able to tell us this: before you pay on a case, I presume you get a doctor's certificate?—For lead-poisoning, most decidedly.

6371. And a doctor of whom you approve?—No, if a claim is made upon an employer the man accompanies his claim with a medical certificate. That is forwarded on to us and put before one of our own doctors, and if we then think it is necessary we would have the man come and see us or medically examined on behalf of the employer, because we represent the employer.

6372. What it means then is that it is a certificate of a doctor of whom you approve?—Yes, that is the usual custom.

6373. I would like to ask you, Mr. Harrison, if you can give me the name of any firm employing painters who is insured with your company?—Yes; the one I referred to was Burns, of Rockdale.

6374. What is he?—A general builder and contractor. Another man who employed the same person was Veitch, of Hurstville. Those were the two employers I referred to in the case of lead-poisoning which I mentioned just now. In regard to general business, when you asked the question of Mr. Montefiore just now, I was thinking in my own mind of the painting contractors we have actually on our books. I cannot remember any in particular. As I said to the Deputy-President, we have a small business in that class of business. It is not at all representative, and personally I cannot recall any of the names. I can give them to you if necessary at a later stage, by simply putting my clerk through the books.

6375. You only remember two at the moment—Burns, of Rockdale, and Veitch, of Hurstville?—Yes.

6376. From memory can you say whether either Mr. Burns or Mr. Veitch employ many hands?—Veitch was not insured with us; he is not one of our clients. Burns was our client. Veitch was another contractor, who had this man employed during the interval when Burns was not employing him.

6377. How many men has Burns in his employ insured with you?—As painters?

6378. Altogether?—I suppose he might have twelve, fifteen, or twenty. They vary. No employer has exactly the same number of employees year by year; they vary up and down according to the employers' business.

6379. From your point of view you can estimate it at a fixed sum. In round figures you could say it averages about five or seven?—No, I cannot, because I never see those figures.

6380. I want to know how much you do know about the employers who insure with you. If you know nothing about it I shall not be surprised, but I want to get the extent of your knowledge?—I do not know the details of the number of employees or the exact amount of wages paid in each particular instance. All I handle is the totals.

6381. All you know is that an employee of Mr. Burns was compensated?—Yes.

6382. But you do not know how many men Mr. Burns employs or how many painters he employs?—No. I should say from my general knowledge, and from what I know of Burns as a contractor, that he probably would have a dozen to twenty men employed through the year.

6383. What makes you say that?—Because I know Burns' business, and I know pretty well what he does. I have a general working knowledge of most of the people who are insured with us, but I cannot give you anything like definite figures.

6384. He is what you call a small builder, and you think he may employ twelve to twenty men?—Yes.

6385. That is subject to correction?—Yes.

6386. With regard to you, Mr. Kimpton, can you give us the name of any employer of painters insured with your company?—No, I am afraid just at the moment I cannot. Our business is distributed over the whole of New South Wales, and it is very difficult to bring to memory certain occupations out of some thousands of insurers. I could not say at the moment.

6387. You only said that no such case came before you to your recollection?—Quite so.

6388. Can you, Mr. Locke, give us the name of any employer employing painters who insures with your company?—Not off-hand.

6389. Mr. HARRISON: Mr. Locke's business is only four months old.

6390. DEPUTY-PRESIDENT: Thank you, gentlemen; we are grateful for your attendance and the information you have given us.

(Witnesses retired.)

[Medical and surgical report of H.M.A. Dockyard, between 1st January and 31st December, 1920, put in and marked Exhibit No. 8.]

6391. DEPUTY-PRESIDENT: The Board has received a letter from the officer-in-charge of the State Government Insurance Office of Brisbane. The letter was written at the suggestion of Mr. Goodwyn, who is the manager of the Fire and Accident Branch of the Australian Provincial Assurance Association, Sydney, and who was a witness at an earlier stage of the inquiry. The letter, which is dated 7th July, 1921, is addressed to the President, Board of Trade, Sydney, and is in these terms:—

I am in receipt of a letter dated 2nd instant from Mr. J. Goodwyn, manager of the Fire and Accident Branch of the Australian Provincial Association, of Sydney, and late Commissioner of this office, in connection with an inquiry into the effects of the use of white-lead in industrial pursuits, and in which he requests me to forward you an analysis of cases of lead-poisoning reported and the amount of compensation paid in respect thereto, distinguishing fatal, permanent disablement, and temporary disablement. I accordingly have pleasure in furnishing the desired analysis.

The analysis shows that there were two claims reported of fatal disablements, the amount of compensation paid therefor being £1,061 13s. 9d. In respect of permanent disablement there is no entry in either column. In respect of temporary disablements twenty claims were reported, the amount of compensation being £622 0s. 1d. The cases total twenty-two, and the compensation totalled £1,683 13s. 10d. I am unable to say in respect of what period the computation is made, and I have asked Mr. Goodwyn to attend to-morrow in order that he may show me the letter that he wrote to the insurance commissioner, and the request that he made for information. In the absence of knowledge as to the form of the request made by Mr. Goodwyn it can only be assumed that the whole of the experience of the office has been given in this table; that is, from the date of its institution.

6392. Mr. CONNINGTON: Supposing we accept that, when would that be?

6393. DEPUTY-PRESIDENT: The Act was passed in 1916. After Mr. Goodwyn has given his evidence to-morrow the Board will call the Statist to the

Board of Trade, Mr. D. T. Sawkins, who will give the Board the interpretations of statistics that have been obtained by the Board from the Government Statistician. It may be necessary to call the Government Statistician in the first place. In order that all proper formalities may be observed the Board will endeavour to call the Government Statistician first, in order that tables prepared in his office may be attested to. Then interpretations based upon those tables from the statistical standpoint will be given by the Board's Statist, Mr. Sawkins. After Mr. Sawkins has given his evidence, Mr. Perdriau will complete the evidence that he has to give with respect to administrative experience, and the Board then will be glad to receive such evidence as you may desire to call, Mr. Manning.

6394. MR. MANNING: That will be some time during the morning, I expect.

6395. DEPUTY-PRESIDENT: I should imagine that the evidence that is to be given by Mr. Goodwyn, by Mr. Smith, the Government Statistician, by Mr. Sawkins, and by Mr. Perdriau will take up nearly the whole of the morning, but inasmuch as it may be necessary for some study to be made of the tables prepared by Mr. Sawkins, and inasmuch as both you and Mr. Connington may prefer to study those tables before completing your examination of Mr. Sawkins, it would, perhaps, be advisable to have one of your witnesses in reserve in the morning.

6396. MR. MANNING: Very well.

(At 4.5 p.m. the further hearing was adjourned until 10 a.m. on Thursday, the 14th July.)

TENTH SITTING.

THURSDAY, 14 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

JOHN GOODWYN recalled, further examined by Board:—

6397. DEPUTY-PRESIDENT: You have been already sworn in this inquiry. As a result of your giving evidence to the Board, you wrote to the State Government Insurance Office, in Queensland, asking them to supply you with certain information?—Yes.

6398. Have you the text of the letter you wrote to the Insurance Commissioner?—Yes, I produce the letter.

6399. DEPUTY-PRESIDENT: The letter is dated 2nd July, 1921, addressed to the Insurance Commissioner, State Government Insurance Office, Brisbane, and is in these terms:—

NEW SOUTH WALES BOARD OF TRADE.

"The Board of Trade are making an inquiry into the effects of the use of white-lead in industrial pursuits.

"I was yesterday called upon to give evidence on the case, and produced my report for the year ending 30th June, 1920.

"Table 9 of the Statistical Returns deals with compensation claims for arsenic, copper, lead, and other metalliferous poisonings.

"The Commission was particularly desirous of ascertaining the number of cases of lead-poisoning reported and the amount of compensation paid in respect thereto, distinguishing fatal, permanent disablements, and temporary disablements.

"As the claims are very few in number, I should be very much obliged if you would arrange to address the President of the Board of Trade, giving him the analysis desired, and stating that you do so at my request.

"Trusting that I am not imposing too far upon your good nature,

"Yours faithfully, . . ."

You know Mr. Watson, I suppose?—Mr. Watson was my deputy, and is now my successor.

6400. You would recognise his signature and the paper on which he would address a letter to the Board?—Yes, I do.

6401. Have you read that letter?—He sent me a copy of it.

6402. That letter would be written officially by Mr. Watson in reply to your request that the information should be supplied to the Board?—Yes. I thought it might be of service to the Board.

6403. DEPUTY-PRESIDENT: The Board appreciates your efforts to obtain information for it. The letter is dated 7th July, and is addressed to the President of the Board of Trade, and was given in yesterday's evidence, so I need not repeat it now. Some doubt arises in respect of the period which that return covers?—I take it to be three years, but it may possibly be four years. I take it to be the three years ended 30th June, 1920; but it may be possibly the four years ended 30th June, 1921. That point struck me, I must say, when I read the letter; but I think the Board would be fairly safe in taking it for the three-year period. I asked for the analysis of these claims; would you like to have them?

6404. Yes, we would. The four years would be the maximum of experience?—Yes; but I think that refers to the three years ended 30th June, 1920, as I have said. It would be easy enough to make certain of that, and I will write and ask for the information.

6405. Mr. CONNINGTON: Can you say whether, during your time in Queensland, the Government have taken any steps to deal with the question of white-lead in paint?—Not in my time; nothing that I know of.

6406. How long is it since you left?—Only a year—a little over nine months.

6407. Do you remember a deputation of doctors waiting?—I have no personal recollection of it.

6408. Not in 1918?—No.

6409. Do you know Dr. Dodds?—Yes. I also know Dr. Gibson, Dr. Mathieson, Dr. Phelander, and Dr. Hemsley.

6410. They are all reputable medical men?—Absolutely; they are all leaders of their profession. Dr. Dodds, I think, is the Principal Government Medical Officer.

6411. You are not aware whether there is any legislation contemplated there?—I saw a statement in the press, but that is only hearsay, of course. Apart from that I know nothing.

6412. Mr. MANNING: I think you told us something about the Chillagoe mines up there. That was a Government institution?—The Government mines are running at Chillagoe, but I cannot say it runs them all.

6413. Did you mention the other day whether or not there were any fatal cases at Chillagoe?—I really cannot remember that, and, as a matter of fact, the one case that I remember of lead-poisoning was in a printery at Rockhampton. I do not remember a case as in a mine at all.

6414. DEPUTY-PRESIDENT: Is that one of the fatal cases?—Yes, the case of a linotype operator.

[*Letter from manager of the Australian Provincial Association, Limited, Sydney to the Insurance Commissioner, State Government Insurance Office, Brisbane, dated 2nd July, 1921, put in; marked Exhibit No. 9.*]

(Witness retired.)

RALPH JOSEPH PERDRIAU recalled, further examined by BOARD:—

6415. DEPUTY-PRESIDENT: You have already been sworn. You have prepared some further information in connection with this inquiry, have you not?—Yes. The Board asked for the dates of the death of the men who were employed in the Building Construction Branch, who were shown in this return. The Treasury Insurance Board informed me that Brown died on 8th November, 1919, and Bohm died on 16th April, 1920. The compensation was apparently paid in 1920.

6416. Are you referring to Exhibit 5?—The cases that occurred in the metropolitan district compensated during 1920.

6417. Which is the item?—It will be the seventh employer down on the list—Building Construction Branch. The Board asked for the dates of death of those two cases—one aged 55 and the other aged 48. Brown, I am told, died on 8th November, 1919.

6418. Is he the first?—I am not sure of that.

6419. Have you the money paid in respect of those?—I cannot identify them. Bohm died on 16th April, 1920. In regard to that return, the last case on that list, the Port Jackson and Manly Steamship Company, was the case of a painter, and should have been included amongst the painters. Then the case shown in the iron trades, Mort's Dock, shown as a joiner—that man saw me and from the notes I took at the time he said he had been using red-lead on wood that had to go into the boats, and it was to that he attributed his lead-poisoning. The Board asked about the value of these returns as showing whether they covered all the cases of lead-poisoning which had occurred. They would not, because cases would come under a particular heading in here; first of all, there are cases not diagnosed as lead-poisoning. It is just suggesting there may be cases of that kind. Then there would be cases not compensated under the Workmen's Compensation Act because, first, full wages may be paid either at common law or on account of personal considerations. Then there would be cases where a workman would not be disabled for one week as required by the Act. A man may be off for two or three days and not go off again for a month, so he would not be entitled to compensation. That case would not be included. Then there would be a case, although no claim would be made, of a man who was suffering from lead-poisoning—he would not make a claim for fear of discharge. Then there are cases where a man's claim might fail for any reason at all. One reason might be lack of notice as required by the Act, notice of his injury or notice of claim. Another reason would be that a man was employed by a Commonwealth instrumentality, such as Garden Island or Cockatoo Dock. There would also be the cases which were compensated, but which would not be included in the compensation returns.

6420. Not returned?—Yes.

6420½. Although compensated?—Yes. On referring to our accident returns for 1920, I find that 2,426 returns were received from employers, and on checking those up with other returns received in the Department and writing to employers, we received another 107 accident returns. That shows that in cases of accident there is a deficiency of about 4 per cent. of returns.

6421. That is, if you got in all the returns?—Yes.

6422. But do you think you did?—Oh, no. That is, so far as we know there was a deficiency of 4 per cent. As I said before, probably the large employers furnish returns, but the smaller employers, those who employ one or two hands, would probably miss making a return.

6423. On that account, there is probably a margin of error in excess of 5 per cent.?—I should say so.

6424. Can you estimate the margin of error arising from the other six causes?—No. I do not think that would be possible. There would be no information at all on which to base an estimate.

6425. Has the penalty for failure to make returns ever been enforced?—It has not been enforced yet.

6426. In what period of time—since 1916?—The Act came into force in July, 1917.

6427. Do you think those upon whom the obligation falls appreciate their responsibility as fully as they ought to do?—I think they treat it seriously. In most of the cases it is the first offence that we detect. I think for that reason there have been no prosecutions so far.

6428. You have never had occasion to remind an employer that he is under the duty of making a return, twice?—I would not say that, but I think generally I can say it is there. In this case where the claim fails that I refer to, I notice in the report of the Departmental Committee on Workmen's Compensation dated 1920 (Great Britain), No. Cmd. 816, page 28, paragraph 36, there is something I might read in regard to that:—

The certifying surgeon is not empowered to give a certificate of disablement after the workman has recovered from the disease, and Dr. Dearden informed us that cases still not infrequently arise where the workman, through ignorance of the special procedure, neglects to apply to the certifying surgeon until it is too late. In order to guard against any such occurrence, we suggest that it should be made compulsory for an employer, in such cases as the proposed Commissioner may direct, to exhibit on his premises a notice (to be combined with the notice hereinafter suggested—see paragraph 78—as to notification of accidents) directing the attention of the workman to the application of the Act to the scheduled diseases, and the special steps to be taken for the purposes of claiming compensation. The workman should then have no difficulty if need arises in obtaining any further information necessary either from his trade union or approved society, or (if the suggestion made elsewhere in this report is approved) by application to the Registrar of the County Court.

6429. You suggest that it is an illuminating passage, with respect to English insurance?—Yes.

6430. And that English experience is likely to be duplicated here?—Yes, very likely. Then there is something else which refers practically to the same subject, on page 29, paragraph 38, subparagraph (d):

Difficulties sometimes arise owing to the issue by the certifying surgeon of a certificate in the irregular form, *e.g.*, the particular disease is not described in the certificate in such a way as to identify it with the scheduled disease. In some instances of this kind the employer has appealed to the medical referee, who has felt bound, in view of the technical flaw, to allow the appeal. In other instances the employer has simply declined to pay compensation, and when the workman has taken proceedings in court to recover compensation, the judge has been constrained to dismiss the application (*see Chippendale v. High Explosives, Limited, of Lytham*, 1918, 120 L.T., 9). In such cases substantial hardship may result, as by the time the case has been determined

by the referee or the court the workman may have recovered, and not be entitled therefore to apply to the certifying surgeon for a fresh certificate.

I remember one case in my own experience where a man had recovered, and it was really too late for him to apply to the certifying surgeon for a certificate.

6431. You do not remember a case in which the certificate failed to technically report the disease as it was described in the schedule?—I think I remember one case where Dr. Nash put in "plumbism" instead of "lead-poisoning." I know the man was very much exercised in his mind as to whether that was right. That is the only case of the kind I know of. The man did not know what plumbism was. He was the case at Mort's Dock—Mowbray.

6432. That report from which you quoted the extract is an official White Paper, is it?—Yes.

6433. And the committee making the inquiry was a governmental committee of the United Kingdom?—Yes, and that Dr. Dearden has something to do with the Certifying Surgeons' Association of Great Britain.

6434. That is, he would be a representative official certifying surgeon under the English Workmen's Act?—He represents the Association of Certifying Factory Surgeons.

6435. Does that complete that matter?—Yes.

6436. Now for the further returns?—I have brought them along just as they have been sent in to us. The lead-poisoning cases I have marked with a lead-pencil.

6437. You have made a selection of all your returns in order to show us every return which has contained a reference to lead-poisoning?—In the cases of painters, yes.

6438. Taking the first paper in the sheaf for the purpose of indicating its character, I propose to ask you to explain the effect of the return. The form in the return as made is known as "Form under Regulation 60?"—Yes.

6439. The person making the return is the employer?—Yes, that is Part I.

6440. The employer paying compensation; and he gives his name, address, the description of the industry he is working at, the approximate average number of persons employed by him to whom the Act applies; he then shows the name of the insurance company covering his risks if he is insured, the number of the policy, and, in a schedule, particulars of the cause of death and particulars of cases of temporary or permanent disablement. Where a death has occurred and compensation has been paid in respect of it, the employer making the return must show the total amount of compensation paid, whether by agreement or by settlement at arbitration; and the amount of costs that he has incurred. Where a person has been temporarily or permanently disabled he must show, in addition to the number of cases, the total amount of compensation paid during the year in respect of which the return is made?—That is so.

6441. And distinguishing between initial liability and cost. Where a claim against an employer has been settled by payment of a lump sum, he must so indicate in another section of the schedule. He must give the number of cases so settled, and the amount paid in respect of each case?—That is right.

6442. Then in a further section the employer making the return must show how many cases were terminated during the year in respect of which the return is made, after payment of less than two weeks' compensation, after payment of two weeks' compensation, but not less than three weeks' compensation, and so on. The cases which were not terminated in the year of

return must be shown in another section of the Parts (II). Finally, particulars must be given by the employer of each individual case, showing the sex and age of the person injured, the day and hour at which the accident occurred, the operation at which the person so employed was engaged at the time of the accident?—I think that is a form which has been adopted. I think there are some forms showing disease.

6443. I will just complete this. There might be an accident in the nature of lead-poisoning. Have you heard of one?—There are accidents in which the injury results in a disease. There is that case of McGuire and the Union Steamship Company.

6444. It is a well-recognised principle?—Yes.

6445. The period for which compensation was paid and the amount paid is also shown. You say there is a special form in respect of industrial diseases?—Yes, I produce such form.

6446. Part III, which is attached to the return in the case of industrial diseases, adopts what I have read with respect to accidents, but it does not appear to vary materially from it except in particulars of the individual cases?—That is (*d*), "Further particulars."

6447. The particulars asked for in respect to industrial diseases are sex, age, industry in which engaged, nature of disease, period of incapacity for which compensation is paid, and the amount of compensation paid. In the section entitled "Further particulars as to cases of industrial disease," the form shows the name of the disease (the name, of course, being taken from the schedule to the Act), the number of cases in which compensation was paid, number continued from previous years, and the number combined during the year of the report?—That is right.

6448. You have already given us a summary of what is contained in these returns?—Yes.

6449. Have you any further papers under your hand?—The certificates of disablement which are filed in the office. I have been able to find about half a dozen.

6450. Mr. MANNING: You say, Mr. Deputy-President, there has been a summary given of these returns?

6451. DEPUTY-PRESIDENT: I think when Mr. Perdriau attended on the second occasion he gave us in summary form what was contained in these papers.

6452. Is it in your exhibit?—Yes.

6453. DEPUTY-PRESIDENT: It is all contained in Exhibit No. 5.

6454. Mr. MANNING: Were there any certificates attached to these?—No.

6455. I think that is the reason why you were recalled. Do you remember what further information was asked for when this return of yours was tendered?—The question before the Board then was as to the value of the information contained in the returns, and the Deputy-President suggested the Board should see the actual returns.

6456. DEPUTY-PRESIDENT: We were testing the value by referring to the method of the returns.

6457. Mr. MANNING: I was uncertain as to the purpose of his recall.

6458. DEPUTY-PRESIDENT: I think that was the only purpose. We need not make an exhibit of these papers. Mr. Perdriau has also supplied copies of the certificates of lead-poisoning issued by the certifying surgeon and filed in the Department of Labour and Industry. The certificates have reference to Arthur Butts Jewry, William Peach (and a second refusal), Joseph Shannon, Charles Stephen Mowbray, Joseph Parks, Joseph Parks (a second time), William Gregory Curran, then Joseph Parks again.

6459. Is there a certificate issued three times, as to Parks?—Is there a foot-note as to that?

6460. The note is "Certificates have already been submitted to the Board of Trade"?—It was submitted, I think, while Dr. Nash was giving his evidence.

6461. So that there are six cases, if we regard Joseph Parks as one case?—Yes.

6462. Are these men identified with the men who were referred to, but of whom there is no note in your exhibit?—Some of them would be. Some of them would not fall within the period.

6463. They are both cases there of men drawn from the metropolitan district?—Yes, all; but they may not have come within the year 1920.

6464. They all come from the year 1920, with the exception of Arthur Butts Jewry?—He is 1920.

6465. The date "6th December, 1919," is on the certificate?—His compensation is shown in the returns as 1920.

6466. So that they ought to be identical with the persons who were referred to in the exhibit?—Yes, they should be.

6467. There is this discrepancy, then: there are nine cases referred to in the exhibit as it has been corrected by you?—Mort's Dock case I make the tenth—there are the Port Jackson and Manly Steamship Company's case and the Mort's Dock case.

6468. I am excluding Mort's Dock case, because the man is reported as a joiner, and cannot therefore be regarded as a painter, although he was in the habit of using red-lead as jointing or stopping material?—I looked up my notes. I think in his case he primed the wood-work that he fixed—

6469. Mr. COOPER: The joints of bolts?—Yes; he put on the red-lead before the wood was fixed in.

6470. DEPUTY-PRESIDENT: That would not make him a painter, would it?—No.

6471. It is a well-recognised operation in ship-joining?—Yes.

6472. When the wooden and iron parts of ships are being placed together prior to bolting, the bolt holes are primed with lead?—Yes, I think that would be it.

6473. Mr. CONNINGTON: To make them water-tight.

6474. DEPUTY-PRESIDENT: That operation would not in any way alter the character of the man as a joiner, would it?—No.

6475. So that we may regard this list in the exhibit, when corrected, as showing reference to nine cases of painters?—Yes.

6476. So the certificates refer, therefore, only to seven, including Parks twice?—That is so.

6477. And there is a discrepancy of at least two, and possibly three, as between the two sheets?—Yes.

6478. DEPUTY-PRESIDENT: I think I should say I have made one alteration on the face of the exhibit. I have put the designation "painter" opposite the last case.

6479. Is it not possible for you to identify these men mentioned in the exhibit, by name?—Oh, yes, the bulk of them.

6480. We will ask you to make an effort to do that?—I would probably have to run through some notes I have.

6481. It does not matter about doing it immediately. Have you any further papers?—I got my typist to run through my note-book and make some extracts from some notes of mine which were made at the time these men were called—all the cases of painters. I was able to trace them from Dr. Nash's list.

6482. DEPUTY-PRESIDENT: I think these notes would be more useful as an aid to the validity of the returns rather than the evidence of the witness on his examination on the previous matter.

6483. MR. MANNING: There is one difficulty I see about that: that we have not been given copies of those returns. They would be of great assistance to me.

6484. DEPUTY-PRESIDENT: Certainly you will be given a copy; the Board is in the habit of having copies made of the exhibits.

6485. MR. CONNINGTON: I shall be glad to have a copy also of this last document.

6486. DEPUTY-PRESIDENT: If it is necessary to get from Mr. Perdriau his new matter, we will proceed to do so.

6487. From your note-book you have extracted references to twenty cases?—Yes, about twenty.

6488. Your note-book, I take it, is kept officially as a record of your transactions on behalf of the Department, with applicants for compensation under the Workmen's Compensation Act?—Yes.

6489. And the note is made contemporaneously with the interview that you have with the applicant?—Yes.

6490. Is this paper which you produce a true transcription of what is contained in your note-book?—Yes, it is.

6491. You have examined it yourself, and know it to be correct?—Yes.

6492. Have you already made reference to each of these cases in the evidence you have given to the Board?—Not each one.

6493. Which are the cases to which reference has not been previously made?—I think reference has been only made to the cases of Jewry, Gilberd, L. Bohm, and Mowbray, so far.

6494. You then offer this sheet as a compilation of particulars with respect to each of the cases that are known to the Department as claims made in respect of lead-poisoning?—Yes. You will notice the name of J. Holborn Warden. That was the case of which Dr. Nash had no particulars. I thought those particulars, there, would supplement the information the Board might have.

[List of plumbism cases, representing extracts from the official note-book of Mr. Perdriau, put in; marked Exhibit 10.]

6495. MR. MANNING: At page 405 of the notes of the proceedings, referring to some statistics which you produced, you were asked to describe the papers from your point of view. You say, "These are returns taken from the official statistics." Then you were asked a number of questions about that. Those statistics were under the Workmen's Compensation Act?—Yes.

6496. I am not bothering to read the whole of the questions; I am summarising them shortly. You then prepared some statistics and were asked to describe them. Do you remember that?—Yes.

6497. What particular return did you produce on that occasion; I am only asking you these questions because I want to get them fairly identified?—First of all there was that return showing compensation paid in regard to lead-poisoning cases, showing the years 1918, 1919, and 1920.

6498. Was that all?—That was the start. Then as to the 1920 cases the return is amplified.

6499. DEPUTY-PRESIDENT: That is Exhibit No. 5, is it?—Yes, it is all Exhibit 5.

6500. MR. MANNING: Let me see those papers, please, you have in your hands now. These are returns of compensation paid for lead-poisoning cases in 1918?

6501. DEPUTY-PRESIDENT: I can see now, in reference to the record, exactly why those voluminous papers were produced to-day. You asked Mr. Perdriau, "Do you know of any specific questions sent out to employers in this matter?"

6502. MR. MANNING: That is what I thought it was.

6503. The top sheet of Exhibit No. 5 is a summary?—Yes, of three years' experience. There is a note at the end referring to something else—the number of cases dealt with by the certifying surgeons. I put that on the bottom of it, because that was meant to show the experience of the certifying surgeons in the different districts of the State. Of course, it really has nothing to do with these exhibits.

6504. You start off, then, with Exhibit No. 5. Did you produce any other exhibit on that day?—I do not think so.

6505. I think your attention was directed solely to Exhibit No. 5 on that day. Since then you have produced the papers that really relate to Exhibit No. 5; you have produced those to-day. Take the first file, or whatever it was, that you did produce to-day?—I am not quite clear as to what you are referring to.

6506. I am asking you what was the first file you produced this morning?—I think it was this file [*indicating*]. Both Brown and Bohm are on Exhibit No. 5. It is headed "Metropolitan . . . District. Cases compensated during the year 1920."

6507. DEPUTY-PRESIDENT: We tried to identify the nameless entries, but did not succeed in doing so.

6508. Mr. MANNING: Where does Brown come in?—Those two cases in Building Construction Branch, aged 55 and 48, are Brown and Bohm.

6509. DEPUTY-PRESIDENT: Mr. Perdriau will later identify the unnamed persons on that page with the names on the list he has supplied us with this morning.

6510. Mr. MANNING: Those in the Building Construction Branch, aged 55 and 48, are Brown and Bohm?—Yes.

6511. Do you produce any papers in reference to those two?—No.

6512. You just know they are Brown and Bohm?—Yes. I rang up the Treasury Insurance Board, and asked the dates of the death of those two cases, in 1920; and I got the information that Brown died on 8th November, 1919, and Bohm died on 16th April, 1920.

6513. You have no authentic record of either of those men, as to what they were employed at—

6514. Mr. MANNING: I do not think this information appears anywhere else.

6515. DEPUTY-PRESIDENT: I am afraid we are going to be left in a dilemma unless these men are identified with the men in Exhibit 5. If the unnamed men on that Exhibit are not identified with the cases of plumbism extracted from Mr. Perdriau's notes, we shall be in a dilemma.

6516. WITNESS: On page 2 of my notes there is "Louis Bohm, 19/5/20." The only note I have against him is "O'Brien—Painters' Union, respecting Farr and Bohm (deceased). Certifying surgeon's claim."

6517. DEPUTY-PRESIDENT: Mr. O'Brien came along?—Yes. He is the secretary of the union. You will see frequent references to him all through.

6518. Is Dr. Nash's list headed "Plumbism cases"?—Yes, twenty cases.

6519. You were going to say something?—There is this entry opposite Bohm's name in Dr. Nash's list:

"40/20, 8th April, 1920, 48 years, Louis Bohm, house painter. Gave certificate. Died 10th April, 1920. I was so informed."

So that the man aged 48 we can pretty well identify, upon that, as being Bohm.

6520. Does Brown's name appear on Dr. Nash's list;—do not bother, if it is not?—No, it does not appear.

6521. Mr. MANNING: Just now you were going to say something about Brown?—On page 4 of my notes of the plumbism cases I have this entry:

“19th November, 1919—O’Brien, secretary, Painters’ Union, *re* Brown’s case.

“22nd November, 1919—Brown’s case. Painter who died at Kogarah Hospital. Discussed medical evidence required for the Education Department and degree of illness.

“3rd December, 1919—O’Brien, secretary, Painter’s Union, for return of Dr. Randall’s certificate in Brown’s case.”

6522. In regard to Bohm, on Dr. Nash’s list, have you got any further information as to him than that you have just mentioned?—No.

6523. But you have a file showing all the papers recorded in connection with him?—I do not think we have any papers.

6524. DEPUTY-PRESIDENT: Those papers were produced by the officer from the Treasury Insurance Board.

6525. Mr. MANNING: Have they gone back?

6526. DEPUTY-PRESIDENT: He promised to keep them out for us, so that we might refer to them at any time.

6527. WITNESS: That was Mr. Spence.

6528. Mr. MANNING: That is the evidence, so far, in regard to Bohm and Brown?—Yes, that is all.

6529. You spoke about the “last case,” the Port Jackson and Manly Steamship Company—that was a painter, and is on Exhibit 5, page 3?—That is the case of A. B. Jewry, in my notes, at the bottom of the first page.

6530. Where did you get the information from that he was a painter?—Well, I handled him myself. I do not think I ever actually saw the man, but I saw Mr. O’Brien about him; the secretary of the Port Jackson Company has seen me about him, and Mr. Mark Mitchell has seen me—

6531. You have a distinct recollection of the case?—Yes, I have no doubt about him at all.

6532. Mr. ROUTLEY: He is on Dr. Nash’s list as a ship’s painter.

6533. Mr. MANNING: Have you any other information with regard to him at all?—Yes, there is a file about that man.

6534. Has this been produced before?—No. The certificate of disablement, or a copy of it, has been produced.

6535. Mr. MANNING: The certificate of disablement here, in Jewry’s case—

6536. DEPUTY-PRESIDENT: That was the case that was litigated. There is an official report as to that.

6537. WITNESS: Here is the report (*producing*). It was in connection with the record of the memorandum of agreement for £80 which I think was ultimately paid in this case.

6538. Mr. MANNING: In Dr. Nash’s certificate he gives the symptoms as “weakness of muscles of arms and legs in consequence of chronic neuritis caused by working in lead compound.” Of course, that certificate is in evidence?—I have a copy of that—it was tendered this morning.

6539. As to the death at 45 years, that was the Mort’s Dock case, Exhibit 5?—That case was dealt with, Jewry’s case, right at the bottom of page 1. It is under the heading of “Transport,” and you will note there is a blank there. He is not put in as a painter.

6540. I see the word “Transport,” and under that the Port Jackson and Manly Steamship Company. I take it you have already dealt with that case, Jewry?—Yes.

6541. But I am asking you as to the Mort’s Dock case, aged 45?—Yes, aged 45, joiner.

6542. That is on 19th July, 1920?—Yes, aged 45, joiner, fifteen and two-third weeks, amount of compensation, £31 6s. 8d.

6543. DEPUTY-PRESIDENT: Mr. Perdriau suggested it; first, as the tenth case of lead-poisoning in the painting trade, but I examined him upon that, and he does not press the suggestion that this man should be regarded as a case of painter's lead-poisoning.

6544. WITNESS: He is referred to at page 3 of my notes:—

“19/7/20. Mowbray, working at Mort's Dock as ship's joiner with red-lead; five months at Coast Hospital. Sent him round to Dr. Nash.”

6545. Mr. MANNING: You do not mention him as a painter?—No; only, from what I remember, he told me he actually handled red-lead, and that is how he got his poisoning.

6546. DEPUTY-PRESIDENT: Not only is his classification doubtful, but according to Dr. Nash's note it was doubtful whether he had contracted lead-poisoning. However, he was compensated, all the same?—He gave a certificate, though.

6547. Mr. MANNING: I will not pursue the matter any further, because I presume he is outside the pale; it is of no use going further into his history.

6548. Then you mentioned some circumstances which affected the conclusion to be drawn from these statistics—there were six or eight of these. Then I thought you produced a file showing all the cases of painters' lead-poisoning?—Yes.

6549. DEPUTY-PRESIDENT: That sheaf of papers, the witness tells me, was a selection from the official returns of the year under the Workmen's Compensation Act and Regulations, by employers who have paid compensation. The selection has reference to cases of compensated lead-poisoning.

6550. Mr. MANNING: Do these files here refer to the same men that you have spoken of in the extracts from your diary?—They would record those occurring within the relevant period, the calendar year 1920. Some of them in my references, “25th March, 1915, Charles Lowe,” probably would not come in at all.

6551. Are these people in your entries who were dealt with as cases occurring during the year, dealt with also in these files?—Yes, very probably. That is, those who were compensated. If there are cases which were not compensated, of course there would be no return.

6552. DEPUTY-PRESIDENT: Have there been any cases not compensated, not appearing in the notes from your diary, could it appear in the notes you have taken from the return here?—I have not checked them with that view, and cannot say.

6553. There are twenty on your note-book?—Those are really the twenty cases the doctor dealt with. When I got the names from his report I was able to run through my diary and pick out the entries regarding them.

6554. DEPUTY-PRESIDENT: Mr. Perdriau might be good enough to check them with the names on his note-book.

6555. Mr. MANNING: Are these returns made by employers?—Yes, or by the insurer on behalf of the employer. They are employers' returns, though.

6556. There is no doctor's certificate here, of course?—No.

6557. Those are the documents in the possession of Mr. Spence?—In regard to his cases only—the Treasury Insurance Board cases—but those cases show, in most instances, the Insurance Companies which paid the compensation, from which you could get the full history of each case, if necessary. You will see on the first page of the employer's return the

employer's insurer; and I take it they would have a file showing the full history of each case.

6558. MR. CONNINGTON: With regard to Mr. James Hughes, he is not on your list. I am informed by Mr. O'Brien he has a certificate from Dr. Nash. He is not on Dr. Nash's list either?—I will look that case up. Can you give me the dates?

6559. We will bring the certificate along?—I can trace him and find out the particulars much more easily if I have dates.

6560. DEPUTY-PRESIDENT: When was this man's claim put forward?

6561. MR. CONNINGTON: Last year.

6562. DEPUTY-PRESIDENT: Can you give the Board the month in which the claim was made?

6563. MR. CONNINGTON: He was a Cockatoo Island employee, and got a certificate from Dr. Nash, I am informed; but we had better produce the certificate.

6564. DEPUTY-PRESIDENT: Then his claim would be against a Federal authority, and not recorded against Mr. Perdriau. That gentleman has already informed us that the State would keep no record of claims which would be made against a Commonwealth instrumentality.

6565. MR. CONNINGTON: But the point is that he is not on Dr. Nash's list.

6566. DEPUTY-PRESIDENT: He would not appear there because his certificate would not be of any value except as against the Commonwealth.

6567. MR. CONNINGTON: I took it, when we accepted Dr. Nash's list, it was a complete list of all cases. Then it would be excluding all these other cases?

6568. DEPUTY-PRESIDENT: Mr. Perdriau has already said persons would not appear who were not diagnosed as lead-poisoning within the State; cases not compensated under the Workmen's Compensation Act; workmen who would not be disabled for one week; cases of men suffering but making no claim because of fear of discharge; cases where a man's claim might fail for some reason, such as lack of notice, or insufficient notice; and also cases of men employed by a Commonwealth instrumentality.

6569. MR. CONNINGTON: I had that in mind, but was not clear about what Dr. Nash's return represented.

6570. DEPUTY-PRESIDENT: Dr. Nash spoke entirely with reference to his experience as certifying surgeon. He might have had cases which reached him in his private practice.

6571. MR. CONNINGTON: I thought he had included everything. We may perhaps want further information from him, but I am not sure.

6572. DEPUTY-PRESIDENT: Mr. Perdriau, will you check the papers in the sheaf showing the returns of employers with respect to cases of lead-poisoning, and the matter contained in Exhibit No. 10, which is the compilation of extracts from your book?—Yes.

6573. And then inform us whether there are cases in the sheaf of returns that are not mentioned in the compilation from your note-book?—Very well.

(Witness retired.)

DANSIE THOMAS SAWKINS, sworn, examined as under:—

6574. DEPUTY-PRESIDENT: What is your position?—Statistical Officer to the Board of Trade.

6575. You have at the Board's request analysed available published statistics with reference to morbidity and mortality amongst painters, and you have obtained from the State Statistician a special compilation of the mortality figures with reference to the occupation of painters, I understand?—My statistics deal so far solely with mortality. There are no morbidity statistics in this list so far.

6576. Will you tell us, then, upon what you based the work of analysis and interpretation that you have done?—On the 29th June, 1921, I wrote to the Government Statistician as follows:—

Subject: Statistics of Mortality of Painters.

"The Board of Trade is inquiring into the causes of death in the painting industry.

"I should be glad if you would be so good as to supply, for the use of the Board, any information which you may have available with reference thereto.

"It is thought by the section of the Board dealing with this matter that much assistance would be afforded by a table showing, if possible, separately for painters of buildings, painters in ships, painters in railway workshops, painters in factory workshops, and painters and dockers engaged upon hulls of ships; the number of deaths in quinquennial age-groups from plumbism, Bright's disease, phthisis, cardio-vascular disease, any disease which research may show to be more characteristic of painters than of the general adult male population; all diseases (Classes I, IX, and XIV), and all causes. Such statistics covering a period of five years would probably throw much light on the question.

"It is hardly likely that the death certificates would enable so exhaustive a subdivision of the occupations to be made as that indicated above. Something in that direction might, however, be possible.

"I shall be glad to learn what steps you may be willing to take in this connection."

The Statistician's answer was dated 6th July, 1921, and was as follows:—

"In answer to your request. I have pleasure in forwarding for the information of the Board of Trade the attached statement, showing the principal causes of death, in age-groups, of house painters, including painters undefined, during the five years 1909 to 1913, and during 1920, which information I had more or less readily available.

"I forward also a statement which may be of interest to the Board, and which I have had compiled for the use of one of the parties to the inquiry before the Board.

"With reference to the wish of the section of the Board dealing with this matter to have a table showing separate information for different kinds of painters. I regret that it is not practicable, as it could not be done without enormous trouble, and even then I doubt if the result would be satisfactory.

"In any case, there are the difficulties which I pointed out to the Board in a letter to them on the 10th September, 1919, in any consideration of occupational mortality in Australia. Particularly I refer to the changes from one occupation to another, which have a material effect on the mortality in occupations which are detrimental to health. Deaths which occur after the transfer may be the direct result of the first occupation, but are recorded under the occupation which is being followed at the time of death.

"The table which I forward herewith shows that of 72 deaths, including 4 children, from lead-poisoning during the 12 years 1909 to 1920, 15 or 16 were in occupations which did not involve any danger from the use of lead.

"H. A. SMITH,

"Government Statistician."

I have made copies of the tables accompanying that letter, and I produce them now.

6577. This is a copy of the table which was indicated in the letter written to you by the State Statistician in reply to your letter to him, asking for information?—Yes.

6578. His letter refers to an earlier letter which he addressed to the Board in connection with the compilation of similar statistics?—That was in connection with the Board's inquiry into miners' phthisis.

6579. Have you that letter close to your hand?—No; but it can be made available if the parties would like to refer to it. The main point is the point that he mentions in this paragraph of the letter which I read, with reference to the shifting of persons from one occupation to another.

6580. Will you indicate the effect of Mr. Smith's work?—The first table is a table of deaths of house-painters and of painters undefined in New South Wales during 1909 to 1913 and 1920.

6581. Mr. MANNING: Perhaps it would be advisable to have the original return marked as an exhibit now.

6582. DEPUTY-PRESIDENT: Yes. This exhibit will contain a copy of a letter addressed on the 29th June, 1921, by the Statistical Officer of the Board of Trade to the Government Statistician, Sydney, the reply of the Government Statistician to the Statistical Officer of the Board on the 6th July, 1921, with enclosures of three sheets, the first two of which are headed: "Number of deaths of house-painters and of painters undefined in New South Wales during 1909-13 and 1920," and the third of which is headed, "Deaths of males of specified occupations, in age groups, from lead-poisoning, in New South Wales, during the twelve years, 1909 to 1920."

[*Documents specified above marked Exhibit No. 11.*]

6583. You were giving us the effect of Mr. Smith's work?—Yes. The table that I asked for is the first table, "Number of deaths of house-painters and of painters undefined." The tables which he prepared for one of the parties occur on the second sheet apparently, so far as I can see. At any rate, I did not ask for those. They give information with regard to the deaths of males in specified occupations, in age groups, from lead-poisoning, in New South Wales during twelve years; that is the first table; the second table is for five years from 1909 to 1913. The top lot are right up-to-date—that is right up to 1920. The last table gives the total of deaths of male compositors, painters, plumbers, miners, and lead-smelters, over 15 years of age from all causes, during five years, 1909 to 1913. I have not actually utilised those last tables for the work that I have here.

6584. You have based your constructive work, then, wholly upon the first table that was supplied at your request?—Yes. Before utilising that table I thought it would be a good thing to get out from the Commonwealth Statistician's bulletins a set of figures for a number of years, showing the deaths according to occupation and age of males aged 15 years and upwards, and I took three special occupations, and all occupations together. I took painters and glaziers, plumbers, carpenters, and all occupations. I have had copies made of that and now supply the Board and the parties with copies.

6585. Is this paper that you have just handed to us merely a transcription of what is to be found in the official publications of the Commonwealth Statistician?—This is a transcription of what is to be found in the Bulletins of Population and Vital Statistics, issued by the Commonwealth Statistician each year, for the years 1909 to 1915 inclusive.

6586. The transcription can be verified then by reference to a certain series of pages in the book that you have there?—Yes, it can be verified and checked by reference to these bulletins. I do not know that I can quote now the numbers of the bulletins, but they are for those five years—the Bulletins of the Commonwealth Statistician on Population and Vital Statistics.

6587. Does this paper form part of the constructive work that you have done?—It represents one of the bases of my computations.

6588. DEPUTY-PRESIDENT: It is attested to as a correct transcription, and it can be checked by reference to the Bulletins of the Commonwealth Statistician, and I think on the whole it would be as well to make it an exhibit in the case.

[Table of deaths according to occupations and ages of males aged 15 years and upwards in the Commonwealth, put in and marked Exhibit No. 12.]

6589. WITNESS: In this table the deaths are shown in age groups. I started with the year 1909 and kept on writing them down, and I have given the details of the thing in order to show how these things happened regularly more or less year by year. If you compare any one year with any other year for painters and glaziers you do not notice any remarkable difference. I went to the year 1915 because that would be the last year that one could be sure would be free from any war effects as regards the population of painters. As regards the later ages, the deaths after 65, there are only four years down. The Statistician did not subdivide them in detail over 65 before 1912, but those four years are quite sufficient to apportion the deaths sufficiently accurately for the purpose.

6590. That is in the higher ages?—Yes. One can go further, if necessary. From that I prepared a summary table showing the proportion of deaths at various ages, and I have worked out also the average age at death of males of all occupations, and of painters, plumbers, and carpenters.

6591. I take it this is another basis?—Yes, this is derived from the last, viz., deaths according to occupation and ages of males aged 15 and upwards.

[Table showing proportion of deaths at various ages, and average age at death, of Commonwealth males, of various occupations, 1909 to 1915; put in and marked Exhibit No. 13.]

This shows out of every 100 deaths of painters how many occurred in special age groups.

6592. So that all the figures except the age figures are percentage figures?—Yes. That left-hand column has not been finished by the typiste. The figures go from 15 to 19, 20 to 24, 25 to 29, and so on. The second figure in each case is always four bigger than the one that is down.

6593. Or one less than the next one?—Yes.

6594. They are inclusive ages?—Yes.

6595. That is 20 to 24 would be inclusive of both figures?—Yes—a person dying at any age from 20 to 24, including the 25th year, and not having reached the age of 25. One obvious deduction from that is that the largest proportion of deaths of painters occurs somewhere about 50 to 54; of plumbers, somewhere between that group and the preceding group; in the case of carpenters the largest proportion occurs somewhere between 70 and 75. In the general population the largest proportion seems to occur somewhere between 70 and 75 similarly.

6596. Carpenters reflect the normal conditions of the community?—I should say that carpenters are more healthy than the general community. If you look at the first ruled line, 65 and over, towards the bottom, it shows that 26.1 per cent. of the deaths of painters, are at the age of 65 and over; 20.6 per cent. of the deaths of plumbers, 46.5 per cent. of the deaths of carpenters, and 39.1 per cent. of the deaths of persons of all occupations are at the age of 65 or over.

6597. That would seem to indicate that plumbers are the least long-lived of the classes dealt with?—Yes. It is an indication, but it is not a proof.

as I shall endeavour to show later. The proportion of old painters who die as painters and are put on the death certificate as painters, is very much smaller than the proportion of old men of all occupations who die. The thing can be looked at in another way. I have worked out also the average age of those who died. The average age of painters, of the age of 15 years and over at death, was 53·5; of plumbers, 49·3; of carpenters, 60·9; of all occupations, 57·1. That "all occupations" excludes persons of independent means and dependents.

6598. It includes, then, only occupied breadwinners?—Yes, excluding retired people. The average age at death of those classes at ages 20 years and over was, in the case of painters, 54·2; in the case of plumbers, 51·2; in the case of carpenters, 61·6; in the case of "all occupations," 57·8. Of course, the average age at death is not a complete criterion of whether an occupation or a community is healthy. You can consider a community in which the birthrate has stopped entirely and there is no immigration or emigration. Then as the population wears out the average age at death will continually increase.

6599. That would be an indication of a high age at death, but a very unhealthy community?—Not necessarily an unhealthy community.

6600. An abnormally badly situated community?—Yes. On the other hand you could take a community that was very virile and progressing rapidly, and had a very high birthrate. The average age at death in such a community would probably diminish as its birthrate progressively increased. So that the average age at death is not a criterion. It used to be used a good deal some decades back, but nowadays it has not the same standing as a criterion.

6601. It is not regarded as conclusive?—No, but still it gives valuable indications. For instance, if you considered the general population of painters; if you had information with regard to the age constitution of the population of painters in the community, and you compared that with the age constitution of the general occupied male in the community, and you did not see any outstanding differences between the age constitutions of those two classes—that is, of the living (you might get that from the census), and if the age at death of those who died in the first occupation was much lower than the age at death of those who died in the general occupation, you would probably be fairly right in considering that you had stronger evidence then that that occupation was, comparatively speaking, unhealthy. I did compare the populations of painters and breadwinners generally, excluding persons of independent means in the community, in another table.

6602. What was the effect of your comparison?—I will hand you a copy of the table and it will be easier for you to follow. [*Table showing number of persons of various ages in the Commonwealth population of painters and of males of all occupations at Census 1911, marked Exhibit No. 14.*] In order to make a comparison I just divided the breadwinners by 100. It so happened that by dividing the breadwinners by 100 I got numbers that were comparable with the numbers of the population of house-painters, paperhangers, glaziers, and signwriters. If you compare those numbers line by line you will see that there is not very much difference; in the earliest age group, 15 to 19, the comparative number of house-painters is smaller than in the general population of breadwinners. Up to age 50 things are about the same, the numbers very closely agreeing; but after 50 you begin to see the number of old painters does not compare very favourably with the number of old breadwinners. Of course, it may be, for example, that painting is a lucrative occupation, which men follow until they are about the age of 50 and then retire into the ranks of people of independent means.

6603. And are so returned in their death certificates?—They may be returned as persons of independent means in their death certificates.

6604. Those are difficulties that obstruct the view as one commences to interpret statistics?—That is one of the difficulties, and I cannot for the time being go any further with that; I have not had time so far, but I will give it a little consideration later on. The comparatively early age at death of painters I then considered in connection with the matter which the Government Statistician had prepared. I compared the causes of deaths of males of all occupations in the Commonwealth aged 15 years and upwards in the seven years, 1909 to 1915, with the matter that the State Statistician had forwarded. [*Table of causes of death of males of all occupations aged 15 years and upwards in Commonwealth, 1909 to 1915, marked Exhibit No. 15.*] I have given the details of causes for all the years, just with a view to showing that these things happen in a normal way. There is not very much difference from year to year. If you take the case of tuberculosis you see that it varies from something like 1,800 to 1,900, and if one allows for the difference in the population as between those years it seems that the percentage of deaths from tuberculosis and the rate of death from tuberculosis do not vary very much from year to year.

6605. The number varies in connection with the variation in population rather than otherwise?—Yes, it varies over a long period of time and there are little oscillations; but I have taken enough years there, I think, to get a characteristic relative frequency of deaths according to those different causes—typhoid, influenza, tuberculosis, and so on. Amongst the diseases that are taken in this list are the ones that are generally thought to be more characteristic of painters or specially characteristic of painters. The first page is for all occupations for those seven years; the next page is a summary of Mr. Smith's matter.

6606. Before we leave the first page, I notice you have given a group of diseases, and then you have totalled that?—Yes, that is the total for that set.

6607. You have separated the diseases into sets with totals indicating the effects in connection with each set of diseases?—Yes. The first total is really for all general diseases. Then the next set is for diseases of the nervous system. The next set, which is totalled to 2,920 in the first line, is for diseases of the circulatory system. The next is for diseases of the respiratory system. The next set is for diseases of the digestive organs. The next set is for diseases of the genito-urinary system. The next is for violence. The next is for all other causes; and the last is for all causes. The second page is a summary of the Government Statistician's matter for comparison with the matter which I got out of the Commonwealth Statistician's Bulletins, and it is arranged in the same way for painters. The third page is a comparison of causes of death of males of all occupations, and of painters, aged 15 years and upwards. The proportions per 1,000 deaths in, firstly, the case of males of all occupations, and secondly, in the case of painters, are compared in those two columns. I have put the decimals in the left one, because the order of accuracy of the figures on the left is higher than the order of accuracy of the figures on the right, on account of the much greater numbers. Nevertheless, the figures on the right without the decimals will probably be comparable in accuracy with the figures on the left, including the decimals. That seventeen for typhoid, if you took another year you might find to be sixteen or eighteen, or perhaps fifteen. With regard to tuberculosis (all forms) I should not be surprised if, perhaps, we took another set of five years we got 110 or 120, or on the other hand, we might get 140 or 150, but those would be the general limits, I think, of the possible non-representative nature of those figures on the right. If you take one five years and another five years

you are bound to get some outstanding differences, and I am trying to indicate the order of difference that you might expect to get between one set of five years and another set of five years. There is nothing remarkable in the case of typhoid or in the case of influenza, but in the case of tuberculosis of all forms there is a very remarkable difference, 90 in the one case, and as many as something like 130 in the other case. In connection with tuberculosis, it might be as well to consider the diseases of the respiratory system, which are usually associated in matters of occupational disease with tuberculosis for consideration. The diseases of the respiratory system show 108 in the case of all occupations and 72 in the case of painters; that is to say, the defect in the case of other diseases of the respiratory system, such as pneumonia, bronchitis, and so on, is just about equal to the excess in the case of tuberculosis. It seems to suggest that the effect of the painting industry is to produce tuberculosis out of a lot of diseases, such as bronchitis, pneumonia, and so on. The total is the same in both cases, apparently.

6608. That is, while the painters' respiratory ailments are turned into tuberculosis, they are not more fatal than the respiratory ailments of the average population?—No, in a sense, but there is this difference; that tuberculosis is a disease that kills early, whereas the other diseases do not kill nearly so early.

6609. There is statistical warrant for your last statement?—Yes. I can refer to that presently. I will give some idea of the killing power of the different diseases, or the intensity with which they hit the community at various ages. If that were a fair inference to draw—that a portion of the diseases of the respiratory system was transferred in that way to tuberculosis—that would have the effect of showing a smaller or a lower age at death of painters, because tuberculosis is a disease which, on the average, kills early.

6610. And that you have already found?—That I can find.

6611. Have you found that in this return?—We found that the age at death is earlier. It is a thing I am trying to suggest reasons for. There is not very much difference in the other general diseases.

6612. There is a remarkable difference, is there not, in anæmia chlorosis; I mean, the percentage difference is very high?—Yes, it is high, but it is a relatively unimportant disease; it is thirteen there as against 128 for the tuberculosis. I do not pretend to be able to analyse this table in its final conclusions; I am only making suggestions. Some of the main points about it are these: take the diseases of the nervous system; you see there the frequency of death from them is greater in the case of painters. In the case of diseases of the heart the difference is not much, nor is it much in other diseases of the circulatory system; in the case of cirrhosis of the liver there is not very much difference, nor in the case of diseases of the digestive system generally. Then we come to Bright's disease, where there is a terrific difference; 55 per cent. per 1,000 of the general occupied male die from Bright's disease, and 152 per 1,000 of painters die from Bright's disease. In the case of other diseases of the genito-urinary system, there seems to be a defect in the case of the painters; as likely as not they are turned into Bright's disease. On the whole, in that system you have a difference of eighty-six, or really about double. In the case of death by fall, one would naturally expect painters to be more liable to suffer death from falls, and that is indicated by the statistics. In the case of death from all other causes, including average diseases, and such a cause as senility—if a painter is going to die from early killing diseases, such as tuberculosis, you would naturally expect that the number who live to die of senility will be smaller. 0·4 per 1,000 is the average from lead-poisoning in the case of the general community, and

sixteen per 1,000 in the case of painters. I produce another table which forms a sort of summary of that one. [*Table showing for painters the excess of percentage of deaths due to certain diseases, marked Exhibit No. 16.*] The departmental committee on the use of lead in the United Kingdom in 1920 set up a table in a similar fashion to this. You will see that the last column is headed, "Excess of deaths in every thousand ascribed to the influence of lead." I do not ascribe them to the influence of lead; that is a matter of general medical and expert opinion, and it is a matter for the Board to judge. I have merely put it there following the form of the English inquiry. With regard to the cause of death as a proportion of all causes of death, you will see all causes 1,000. In the case of all occupations, ages 15 years and over, it is 0.4 per 1,000 from lead-poisoning, and in painters it is 16 per 1,000. From Bright's disease it is 55.2 for all occupations, and 152 for painters. In tuberculosis (all forms) it is 90.4 for all occupations, and 128 for painters. In lead-poisoning, Bright's disease and tuberculosis (all forms), that is, the total of all those diseases, it is 146 for all occupations, and 296 per 1,000 in the case of painters. The excess of deaths in every 1,000 ascribed to the influence of lead would therefore be 150 per 1,000 in the case of painters, or 15 per cent. The corresponding figure in the United Kingdom was 12 per cent. It is not quite so bad there as it is here, apparently, according to those figures. There is one more suggestion I should like to make, and that is that in the census the total population of bread-winners, excluding persons of independent means, and dependents, is a little more than one hundred times the population of house-painters, paper-hangers, and glaziers. I have the signwriters here separately; they do not affect things very much. It is something of the order of one hundred times the population of house-painters, paper-hangers, and glaziers. I was a little surprised at that, comparing it with exhibit No. 12. Strangely enough, in Exhibit No. 12 the total number of deaths of painters and glaziers in those seven years 1909 to 1915, was 1,309, and the total number of deaths of all occupations, excluding indefinites and dependents in the way it has been done here, was a little more than one hundred times as great. Consequently, it does not look as if there was very much difference between the absolute death-rate of the painters and glaziers and the absolute death-rate of persons of all occupations. It rather conflicts in a way with the general tendency of the other evidence, but there it is.

6613. What explanation suggests itself to your mind in connection with that apparent conflict?—I find it very difficult indeed to explain it. Of course, that way of putting things, "Excess of deaths in every thousand ascribed to the influence of lead," means that the relative frequency of death from those things is just 15 per 100, or 150 per 1,000 greater in the one case than in the other. Certainly those figures do not in themselves point to a vastly higher absolute death-rate in the case of painters and glaziers than in the case of the general population.

6614. Does it not suggest to your mind that there may be some alteration in the designation of a painter at the time when his death certificate is prepared?—It might possibly be so.

6615. Would it be accounted for in this way: if a painter's health was so affected that, towards his death, it would be necessary for him to refrain from following his occupation, and his classification therefore would become a little less definite than it would be if he died in harness, would not that account to some extent for the general death-rate being in conflict with the particular inferences that you have been able to draw with regard to specific diseases?—I do not know that it would. It is a very difficult point.

6616. If a man is not at the moment of his death following the occupation of his lifetime would there be any guarantee at all that he would be

returned as having followed that occupation?—I do not think he would be if he were not following it at the time of his death.

6617. There would be a very considerable risk that his occupation would be misreported?—Yes, I think so. Such a large number of the deaths occur in public institutions. Perhaps they do make careful inquiry as to what has been the main occupation of the man. If it is left to the wife, she is in a very nervous condition at the time, under great stress, and the matter of the occupation is not of very much importance, and it is not put down with the accuracy probably that there would be in life in the ordinary way. It is one of the great difficulties in connection with occupational diseases—the definite determination of the occupation.

6618. A reflection of that kind is no more valuable than any other surmise would be?—No.

6619. One cannot take a definite stand in the matter?—No, it is impossible to take a definite stand. You asked me to make a reference to authorities for that statement as to the early killing nature of one disease as against another. I refer to the first volume of the Census Report of the Commonwealth Statistician, 1911, Appendix A, page 420. The number of deaths that occur from tuberculosis at ages 25 to 29 is 964, and it increases to over 1,000 in the next age group, and is at 1,500 from age 45 to 49, and then it is 1,500 or 1,600 right up to 65 to 69. It starts being an intensely hard-hitting disease at the age 25 to 29.

6620. And it persists in killing from that age onwards?—Up to 65 to 69. Then at 70 to 74 you have 1,200 people dying from it. It is still pretty persistent.

6621. What is the incidence of the disease in relation to the age of painters?—One might get some small evidence with regard to that from the first exhibit, but it is such a small period, and they are so few, that it is very hard to draw deductions from it. I do not think it would be likely to kill painters at any special age. It is more or less the nature of the disease that it has that tendency to start to kill earlier than other diseases. I was going to compare it with heart disease. The death-rate from heart disease at 40 to 44 is 700 per million; at 65 to 69 it is 8,000 per million, and at 85 to 89 it is 27,000 per million.

6622. You are referring to the matter on page 420 of the Census of the Commonwealth of Australia of the 3rd April, 1911, vol. 1?—Yes. Bright's disease is an average sort of disease; it has not any special qualifications for killing early, any more than cancer or heart disease. The fact that the age at death of painters is lower than the age at death of others is, I think, probably due more to tuberculosis than any other cause—to excessive proneness to tuberculosis.

6623. Inferences can only be based upon that in a very guarded manner, inasmuch as they are no more prone to respiratory ailments as causes of death than the general community?—Yes, they might be less prone than the general community to death from respiratory ailments. The point about respiratory ailments is that, compared with tuberculosis, they are late killers. Bronchitis hits children very hard. Acute bronchitis is practically a child's disease. That would not affect this business at all. Chronic bronchitis is a thing which begins to kill people at quite a late age. Similarly with most other diseases of the respiratory system. They have not got the qualifications for early killing of adults that tuberculosis has. I think it is mostly because of the extra tuberculosis that the age at death of painters is lower than the age at death of the person of the average occupation. One point about these figures is that the case of plumbers seems to be worse than that of painters and glaziers.

6624. Did you form any opinion as to the relative unhealthiness of the two occupations in the course of your work?—I could not, except so

far as these statistics show that there is a lower age of death in the case of plumbers. I have not the set of figures from the Government Statistician in detail in the case of plumbers as I have in the case of painters.

6625. It is significant that they are both associated with the use of lead?—Yes. Of course, it is better to be a carpenter than almost any other occupation in the community.

6626. The carpenter's life appears to be a healthier life than that of any person in any other occupation?—Yes.

6627. Is any significance to be attached to the relative infrequency of deaths from alcoholism amongst painters?—They are very small.

6628. It is not an extensive cause of death, but the painter appears to come out of the inquiry rather better in that respect than the male of all occupations?—Yes. Of course, those are relative frequencies. If you assume that the death-rates are equal in the two cases, then that would mean that the average breadwinner was about twice as alcoholic as the painter.

6629. The painter is an abstemious man?—Yes. Even if the death-rate of painters were double that of the average breadwinner, those figures would show about equal death-rates from alcoholism.

6630. What is the importance that you attach to figures showing relevant frequencies of death as compared with actual mortality rates?—It is very difficult to say in a general way what is their importance, except that I have tried to show it generally by putting these papers together.

6631. But in sum, can you generalise upon the matter in a useful way?—I do not think I could. They are just relative frequencies. If we could have in addition the total death-rate, then we could get down to the death-rate from individual diseases; but it is so largely a matter of inference from other things. The sum total of these things seems to me to be that here you have a very much lower age at death of painters; you have also in Exhibit 11 that painters are more subject to tuberculosis and Bright's disease. As far as Bright's disease is concerned, it is not a disease specially qualified to kill at an early age, but tuberculosis is. The probability, therefore, is that their low age at death is largely due to tuberculosis. Then you have that conflicting evidence about the general death-rate. The death-rate does not seem to be very much different from the general death-rate of the average breadwinner.

6632. Would you not expect to see a very much heavier death-rate in the case of men who live a life that is so much shorter than the life of the average breadwinner?—would you not expect that to be reflected directly?—They do not. It is not a fair inference to say that they live a shorter life. All that table shows is that those who died had a lower average age in the case of painters. It does not give you any information about the age of painters who are alive. It only says that the painters who died died at a lower average age than the persons of other occupations who died.

6633. If the inquiry were extended over a longer period of time, inasmuch as all men must die, would you not then pick up the necessary information to enable you to say that the painter lives a shorter life than the average breadwinner?—I do not think you could, by taking any more figures. It may be that men get away from the painting industry after they get to a certain age.

6634. That is what I want you to emphasise;—does not it indicate, inasmuch as our ages must be discovered from our death certificates if we remain in the same place, and under the same classification, that when the figures show in respect of the period a lower age at death of those who die, it must be assumed that the men in this trade cease to be attached

to the trade for statistical purposes at death?—I think there must be something like that in it. You will remember that in the case of the miners' phthisis inquiry we found that the average age of death of the miners (that is, of all classes) and quarrymen together was rather higher than that of the general adult male population; and yet we found in that case, that they were as a whole, much more subject to tuberculosis, and we also found that they had a very much higher death-rate. The probability seems to be that a good many painters leave the occupation after a certain age. That, of course, in itself is an indication, I suppose, to some extent of its unhealthiness.

6635. Are there any industrial statistics of any kind that could be referred to for the purpose of elucidating that point?—I do not know of any at this moment. I will make any further inquiries I can in connection with it, and if I find anything of value I can come here again.

6636. Are statistics to be found in the records of the friendly societies, and so on?—There are so many confusing things in connection with their records. One might take the living population of members of unions, but then you would be liable to consider what was the intensity of the desire of young men to belong to unions in comparison with the desire of old men. They would not be very valuable from the point of view of population. Old men tend to drop off from the unions.

6637. Are there any invalidity or old-age statistics that are likely to throw a light upon the tendency of the painter to leave his trade?—I do not know of any.

6638. If you found that the pensioners for invalidity and old-age were disproportionately composed of painters, would not that indicate that the painter had to leave his trade to some extent?—Yes, it would be a piece of evidence.

6639. Are those statistics available; could they be looked into?—They are not available; we should have to have a special tabulation made by the Commonwealth Invalidity Pensions Office. I will look the thing up; they may be available—I cannot say offhand.

6640. In connection with institutions for the sick, would it be possible from their records to ascertain how many of the inmates are painters in proportion to the general run of inmates?—That would be evidence if we could get the hospital authorities to do it.

6641. Did you make an investigation in connection with the mental hospitals in this case?—There is only that letter from Dr. Sinclair, in which he says that he is inviting the superintendents of the various hospitals to give some information. We are awaiting that; it has not yet come to hand.

6642. Will you be able to give some little further time to those matters we have just mentioned?—Yes.

6643. DEPUTY-PRESIDENT: Do you desire to ask the witness any questions, Mr. Connington? Perhaps it would not be fair to expect you to examine him now. You may want some time to go through these documents.

6644. Mr. CONNINGTON: I would like to ask him a few questions. I will just go through them roughly.

6645. Take Exhibit 12. You have 1,309 and 132,000; 100 will do for a rough figure there, will it not?—Yes.

6646. You will notice that from the ages 65 to 69 it still remains at about 100?—Yes, that is about right.

6647. Then it is 58 to 72; later on the number decreases?—Yes.

6648. That tends to indicate that after 69 the number of painters who live to old age is very considerably less than the average?—That is the same indication as is shown by the next table, Exhibit No. 13.

6649. This is a record of the tables, is it not?—Yes.

6650. It does not deal with the living people at all?—No.

6651. If there is any inference to be drawn from it one would say that the life of the painter, beginning at about 69, is much shorter than that of the rest of the trades enumerated here?—No, I am not prepared to draw that inference. You are only stating in another form what is contained on Exhibit No. 13. You are simply saying that 1,309 is equal to 100, and you are bringing the other figures to the same basis. That is brought out accurately in Exhibit 12. That states precisely in detail what you are now stating.

6652. DEPUTY-PRESIDENT: 26 per cent. only of the painters exceed 65 years of age; but 20 per cent. only of the plumbers exceed that age.

6653. Mr. CONNINGTON: Yes. This only bears out in another way the questions that I have put to Mr. Sawkins with regard to Exhibit 12.

6654. DEPUTY-PRESIDENT: You have to be careful of this, that of those who die 26 per cent. only exceeded 65 years of age. Of the plumbers who died 20 per cent. only exceeded 65 years of age.

6655. Mr. CONNINGTON: That is so. That would indicate that of those who died the plumbers died younger than the painters. That is the inference to be drawn from that.

6656. DEPUTY-PRESIDENT: You cannot carry it very far, as Mr. Sawkins warned me in the questions I put to him. He has not the statistics of life; he has only the statistics of death.

6657. Mr. CONNINGTON: I agree entirely with that. If anything can be drawn from this at all, it is that. Then, of course, the criticism is at once levelled at it that we do not know as to the number who continue to live after the age of 65 years.

6658. DEPUTY-PRESIDENT: The whole matter in a nutshell is this: if a painter has all the painting he can stand at 65 years of age, and if he must leave his trade then, and he drifts into another classification, he is lost utterly to those who would discover his fate by analysing statistics. Those retired painters may live until they are 90 years of age.

6659. Mr. CONNINGTON: They may do so. I agree. If the table is to be used and regarded as in any way conclusive for the purpose of determining any point, we have to assume that the painter is non-existent.

6660. DEPUTY-PRESIDENT: No one wishes it were complete more than we do, but we cannot make it conclusive by wishing it to be so.

6661. Mr. CONNINGTON: From this we shall be expected to do the best we can. It may mean something or it may not. It is something on the subject. I suppose that is what most of the tables are intended to be.

6662. WITNESS: Yes.

6663. DEPUTY-PRESIDENT: We would not be asked to make the inquiry if Mr. Sawkins could make it.

6664. Mr. CONNINGTON: I think we are indebted to you, Mr. Sawkins, for what is here. There is that trouble that you cannot be as conclusive as you would like to be?—I am sorry that is so.

6665. DEPUTY-PRESIDENT: It will be of considerable value to you, Mr. Connington, to re-read those exhibits in the light of Mr. Sawkins's evidence.

6666. Mr. CONNINGTON: I shall do so. I have been following Mr. Sawkins very closely, and I see that when one feels disposed to criticise or examine closely, Mr. Sawkins has foreshadowed that possibility and made the explanation himself.

6667. DEPUTY-PRESIDENT: He has no purpose to serve, but the purpose of indicating the truth, so far as it can be ascertained by him.

6668. Mr. CONNINGTON: And he forestalled any inquiries we might make by inquiring himself and pointing out the weaknesses and the difficulties.

6669. DEPUTY-PRESIDENT: Yes, he is his own critic. Do you desire to ask any questions, Mr. Manning?

6669A. Mr. MANNING: I have no questions to ask at present. Later on, perhaps, I may want to ask him some questions, but I am not in a position to do so at the present time.

(Witness retired.)

6669B. Mr. CONNINGTON: While on the matter of statistics, subject to Mr. Manning raising no objection, we happen to have some English statistics taken from the journal issued by the Employers' Association, which might be somewhat useful to Mr. Sawkins.

6669C. DEPUTY-PRESIDENT: For comparative purposes, in order to get our local evidence in perspective, you might refer to them in your address.

6669D. Mr. MANNING: Mr. Connington might see Mr. Sawkins outside and show them to him, instead of putting them in as an exhibit.

6669E. Mr. CONNINGTON: You have no objection to Mr. Sawkins having them?

6669F. Mr. MANNING: None at all.

6669G. Mr. CONNINGTON: I would not show any document to Mr. Sawkins without you seeing it first.

6669H. Mr. MANNING: I see what you mean. I was only suggesting that, rather than put it in as an exhibit, it would be better if you were to show it to Mr. Sawkins.

6669I. DEPUTY-PRESIDENT: The difficulty about making comparisons of English data with respect to diseases and data derived from local sources is that in England they have a system of notifying diseases under the Factories Act, which does not obtain here. It is, therefore, extremely difficult to make useful comparisons of English official statistics with our own in relation to morbidity.

6669J. Mr. CONNINGTON: You could not compare them. All I mean is that it is something on the subject, and the Board might infer something from it.

6670. DEPUTY-PRESIDENT: We have to find what is the condition of things in Australia. It may be probable, because lead-poisoning is rife in England, that lead-poisoning is rife in Australia, but we are not finding probabilities.

6671. Mr. CONNINGTON: If the Board has the least diffidence about accepting them, I will not press it. I quite see the point of view. We have had a whole mass of figures compiled by a very able man, and fairly compiled, but after all they are inconclusive. They would be no more conclusive than these would be.

6672. DEPUTY-PRESIDENT: Mr. Sawkins's figures are figures relating to Australian conditions, and these are figures relating to British conditions.

6673. Mr. CONNINGTON: And they deal with the particular trade you are now dealing with here.

6674. DEPUTY-PRESIDENT: Lead may have a very different effect on the British constitution and in the British climate to the effect it has upon the Australian constitution and in the Australian climate.

6675. Mr. CONNINGTON: I agree with that, but if our figures were up to date, and on the same lines as those upon which these tables were compiled, it seems to me that we would be almost compelled to say what happens in Australia, if it appears that in England the effect is not so serious, or is more serious. However, I am not pressing this. It is only intended that you should have everything we can find dealing with the subject now before you. You may not act upon it at all.

6676. DEPUTY-PRESIDENT: Because of the British climate it may be necessary to work in factories with closed doors and windows. Because of the conditions of the Australian climate it may be possible to work in Australian factories with open doors and windows.

6677. Mr. CONNINGTON: I agree.

6678. DEPUTY-PRESIDENT: Do you not think that is likely to have an effect upon the report?

6679. Mr. CONNINGTON: I am not going to suggest that because things are so and so in England or in France they must necessarily be so here. We have collected a lot of material here which cannot be as perfect as we would like it to be. We must from that make certain fair inferences, even though we do not act on them. It may impress the mind, or it may not. It will depend on the view you take after reading them.

6680. DEPUTY-PRESIDENT: I am afraid it is going a long way to ask us to infer that because a number of persons suffer from lead-poisoning in England persons of the same industrial character must suffer to the same extent from lead-poisoning here.

6681. Mr. CONNINGTON: I do not know. If in England the average death at all occupations was X, and that compared with the figure here—

6682. DEPUTY-PRESIDENT: What are we going to do? We have no information on the matter now. We do not know what the average age of death of the average British citizen is.

6683. Mr. CONNINGTON: No, but if we did have that information, and it showed that the average at death in certain cases was X, and it happened to be the same here, one might infer from that, so far as climatic conditions were concerned, it did not affect the life.

6684. DEPUTY-PRESIDENT: You heard what Mr. Sawkins said. He said if there was a high birth-rate it might be statistically inferred that there would be a high death-rate. We would have to consider not only what the British death-rate, but what the British birth-rate was.

6685. Mr. CONNINGTON: I know. That is quite obvious. For instance, take the system adopted at Cockatoo for the purpose of proving absence from work; I mean, for malingerers, that is, those who were chronic stop-aways. By them stopping away once every fortnight, or once every month, they might represent ten times the number of persons for the purposes of averages. I know all these things have to be carefully considered, and in this case, if you do not have a very correct basis you may be led to any conclusion.

6686. DEPUTY-PRESIDENT: We know that the salts of lead are poisonous. That is scientific evidence with regard to the cause of evil in this case, and we will take that. We will take any other evidence that may be of the same scientific character, whether it be statistical evidence or not. If you can raise your statistical reflections to the scientific plane, we will take that. What you are suggesting is, I am afraid, that we ourselves should embark upon an enterprise that will perhaps strand us in a sea of statistics.

6687. Mr. CONNINGTON: Perhaps that is so. I am only doing it because I feel it will be of some help to you. I do not ask you to accept it and act on it, because I know it may be impossible for you to do so. I am regarding you all the time as a Commission of Inquiry. When a thing has been dealt with here or elsewhere by some recognised authority, I am taking it that you would like to know what they have done on the subject. If you are not anxious on that I admit that I should not put that in.

6688. DEPUTY-PRESIDENT: I think that this paper does not raise a statistical proposition to a scientific plane at all in relation to Australia.

6689. Mr. CONNINGTON: I agree with you. If you think that those figures would be of no value to you, in the sense that they may be regarded as

something on the subject of lead-poisoning generally in other parts of the world, then there is no necessity to put them in.

6690. DEPUTY-PRESIDENT: I do not think you can put them in, but we have no objection to you referring to British official statistics in your address to us for the purposes of comparison and for the purposes of interpretation.

6691. Mr. CONNINGTON: Very good.

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

On resuming at 2 p.m.—

EDWIN THOMAS PADGET GRICE, sworn, examined by
Mr. MANNING:—

6692. You live at 176 New Canterbury road, Petersham?—Yes.

6693. You are 52 years of age and you have been in the painting trade for thirty-three years?—Yes.

6694. Before you went into the trade in what occupation were you engaged?—I was engaged as a draper when I was a lad.

6695. Up till what age?—Up till about 18 or 19.

6696. What was the condition of your health then?—My health was very indifferent. The fact of the matter was that I had overgrown my strength. I was as tall when I was 17 as I am now (that is close on 5 feet 11 inches), and I weighed about 8 stone, I think. Under medical examination the doctor who was testing me said that my left lung was not inflated, and he said, "There is a danger if you remain in an indoor occupation, that you will get consumption; there is only one thing for you and that is to go away into the country and pick yourself up a bit, and after that I will examine you again." When I returned to Sydney he said, "You will have to give up your indoor occupation and go to an outdoor occupation." I said, "That is rather severe after putting in all my early days." He said, "It's a matter like this: if you can pull through to 21 you will probably be a strong man; there is no disease, but the weakness is there, and it is very evident; you will have to get an outdoor trade of some sort—anything you can go to." I said, "The only thing I can go to now is this: my brother is engaged in the painting trade and he has offered to take me on and see if it will agree with me." I was under the impression, like a lot of other people, that the painting trade was unhealthy, and I said to him, "Would you call that a healthy trade for one who is delicate?" And he said, "It's the best thing you can do."

6697. Then you went into the painting trade?—Yes, at the age of 20.

6698. And you have been in it now for thirty-three years?—Yes.

6699. During your experience over those thirty-three years what particular classes of painting have you gone in for?—All branches of the painting trade with regard to house-painting and ship-painting. I have had nothing to do with coach-painting.

6700. Both inside and outside in house-painting?—Yes, the whole of the house-painting trade right from the start to the finish—all branches of the trade.

6701. For what portion of that thirty-three years were you engaged in the actual work of painting yourself?—Up till five years ago.

6702. And during the past five years?—I have been in charge of a business, and I am now the only member of the firm.

6703. What is the name of that firm?—B. J. Grice & Company. We are still trading under the same name. My eldest brother was the head of that

firm and there were two other partners—myself and another man—and we were both working partners.

6704. With regard to your own health from the time you were 20 while you have been in the painting trade, have you suffered from any ill-health at all?—Not with regard to anything belonging to the trade. I have only suffered from colds and that sort of thing, which anybody is subject to. If any epidemics come along we all get a touch of it. I have not suffered from it any more than my friends who occupy all sorts of different occupations.

6705. Have you had any recurrence of the symptoms which you displayed when you were 20?—No.

6706. That has worn off altogether?—Yes.

6707. You have never had any illness except ordinary illnesses?—No. I would like to point out that there was no disease even at that time. The doctor said the great danger was that there would be; I had one lung not inflated, and he said, "If you keep to an indoor occupation there is more danger there than in an outdoor occupation."

6708. During those thirty-three years I suppose you have had experience of the various operations in connection with painting and preparing surfaces for painting?—The whole thing in connection with house-painting.

6709. First with regard to the surfaces, what trade operations have you been engaged in in that connection?—The general preparation of a renovation job; there is the washing off of kalsomines, cleaning down your woodwork, and generally preparing your work for finished surfaces. It all depends on the class of work you are on. If you are on distemper work you wash off first. With woodwork you rub down and get a smooth surface before you paint.

6710. Have you mixed paints at all?—I have mixed tons of paints.

6711. Have you mixed paints with white-lead?—Mostly white-lead. I have handled as much as 23 cwt. of lead in three weeks on one job.

6712. In what form was the lead when you handled it?—Ground in raw oil; that is, you break it up yourself.

6713. Have you ever handled it in powder form?—In our early days we used to use dry white-lead for filling, but we never use that now. We used to use dry white-lead and gold size for filling in our work on doors particularly, which thing is never done at the present day. In fact, I do not think that painters of the present day handle dry white-lead.

6714. Have you always known white-lead as a poison?—I have always been told that it is a poison. I know it is a poison to eat.

6715. Did you adopt any precautions when you were mixing lead in paint?—No, no unnecessary precautions.

6716. Did you observe rules of cleanliness?—Certainly I observed those rules. If I went to my meals I would not sit down with my hands all over paint. It never occurred to me that it was a thing to worry about. Take our jobs as a rule: we never think of taking off our overalls when we are sitting down to lunch. It does not seem to worry a painter. If lead were such a dangerous thing as some people seem to think it is you would think that the first thing the painters would do when they knocked off would be to take off their overalls before they sat down to lunch; but we never do that. We wash our hands, but very rarely have I seen a man take the trouble to wash his face.

6717. You have spoken about the preparing of surfaces, and I want to ask you about the preparation of those surfaces. You know the process of rubbing-down—sand-papering?—Yes.

6718. You have had experience both of the wet and dry rubbing-down?—Yes.

6719. And burning the paint off?—Yes.

6720. Have you ever known any ill-effects from the burning-off?—No, not what you would call ill-effects. The fumes of the lamp sometimes will hang on to you and rather annoy you, but it will not affect you constitutionally. There would be the fumes of the lamp and the burnt-off material. We have a lot of fumes and things to contend with in our trade which annoy you, but they annoy the man not in the trade more than they annoy us. We get used to those things and they do not annoy us when we are used to them like they would annoy a stranger.

6721. After you have burnt-off, have you to sand-paper the surface underneath?—After the surface is burnt-off it is all rubbed down with glass-paper.

6722. What do you regard as the risks, if any, to one's health, involved in the sand-papering of the surface after the burning-off?—I never saw the risks much.

6723. Have you ever suffered any ill consequences?—Personally I have not suffered from anything.

6724. Is there much dust caused?—There is the charred dust.

6725. Do you inhale that through your respiratory canal into your nostrils?—I suppose there must be a percentage which gets into your nostrils and that sort of thing.

6726. There is dust caused by the sand-papering, is there?—There must naturally be a little dust.

6727. With regard to other dry rubbing-down, have you ever done any of that?—Dry rubbing-down is rather a wide expression. For instance, supposing you were rubbing-down this woodwork here; that paint is perfectly dry, but you would not get a powder from that woodwork because it is not oxidised. You would rub it down with dry glass-paper, and all you would get from that would be the nibs and the dust arising from the work. You would get a very small proportion of the paint off it.

6728. Say a surface has never been painted before, when you set out to paint it what are the operations which take place?—If it was on interior work, after you had first coated your walls you would give it two or three days to harden a little before you would apply your second coat. Then you would go over that with your glass-paper to give it a coat down, that is to take off the nibs. From an outside point of view there would not be dry rubbing-down because that paint is what we call green. There is no dust comes from that work. You might get a patch occasionally on the wall where there is extreme suction.

6729. As an ordinary working rule would you get any dust from that?—No dust—not to worry you to any extent.

6730. Not to regard as anything to take notice of?—No, not in my experience.

6731. What is the next process after you rub that down?—Then you follow on with your succeeding coats.

6732. Do you rub them down in the same way?—Yes, if necessary.

6733. Until you come to the last one?—Yes. Suppose you were flattening a wall you would give three coats of an oil finish and one coat of flat. The last coat of oil would not be rubbed at all; you would put your flat coat right on to it.

6734. You have also had experience of rubbing down wet?—Yes.

6735. That is the more effective way of preparing a surface that has already been painted?—No, it would not be more effective. On surfaces of doors and that class of wood-work, you spend more time in bringing up your woodwork to a finish. You use your pumice-stone then to rub down and bring it to a smooth and hard surface; that is on doors and windows; but you would not use it on the walls; there is no call for it there.

6736. Is there any danger attached to that?—Not that I am aware of.

6737. During your career of thirty-three years in the painting trade, have you ever known any unusual complaint to be made by the general body of painters as to any dangers in the trade?—No.

6738. Have you ever noticed any of your fellow-workers becoming affected through following the occupation of a painter?—No, I have not noticed that.

6739. Nothing more than people engaged in any other trade?—In our firm's experience, and the firm is over 40 years old, there was one man supposed to be leaded; as a matter of fact, he was leaded. I suppose that would be about twenty-five years ago. He was in the shop for a few years. I believe that man had lead-poisoning, but that was the only case that ever came under my notice, or under the notice of the firm, as far as my knowledge goes.

6740. From your experience of lead-paints, what opinion have you formed of lead-paints in comparison with other paints?—Well, we have no substitute for lead-paints. My personal and candid opinion is that if you take lead out of the painting trade you will take the whole basis of your trade away. We built up our work on lead, and we have no other efficient basis to work with. We built up all our work on lead.

6741. You have found that to be the real basis of your painting trade?—Yes, on paint work. Of course there are other classes of our trade where no paints are used at all, such as in distemper colours.

6742. I want you to compare the use of lead paints with zinc paints?—Zinc paints are not suitable to be used where you would use lead. Lead is the only thing we have where we have a true base to bring our finished work up on to. Zinc is used in places, and a percentage of zinc used in paints at times is beneficial, but if you use all zinc you would not get the results you are looking for. When you are painting a place you are doing it for the purpose of protecting your property, which I maintain you cannot do by using zinc, because that is too hard a substance altogether, and it cracks, and it has not got the weather-resisting powers that lead has. If you are going to bring up your wood-work you cannot do it with zinc, because you have no base to work on. You cannot rub your zinc down to a fine finish like you can lead.

6743. It has been suggested here that paint with a zinc base is preferable to paint with a lead base for use near the seaside. What has been your experience in that connection?—For the seaside I always do finish with the use of zinc, and use a percentage of zinc with each lead-finishing coat, but not on preparatory coats. I always have a lead base for bringing up my work. In my practical work I use 25 per cent. of zinc on my finishing work; we do not weigh it, but just take it in bulk.

6744. But it is substantially a lead base which you use?—The base is lead absolutely. I do not know of anything we could use in place of it.

6745. We have heard it said here that the zinc oxide paint does not oxidise as quickly as lead. Is that a fact?—Quite true.

6746. Do you attach any importance to that fact as a comparison between lead and zinc?—Yes, it has this importance, that I use a percentage of zinc as I have just stated. It is to stop the oxidising which you do get with lead paint. With all sorts of lead you will find that it will oxidise quicker under the action of sea air.

6747. You use a mixture of lead and zinc in the last coats to prevent the lead underneath from oxidising?—Yes, from oxidising so quickly.

6748. In that respect it is a useful mixture for that purpose?—Yes.

6749. You have been speaking about the outside work. What do you say with regard to the inside work?—We use many materials inside. At the present day we use a lot of what they call flat oil paints. They are usually

made from lithopone of lead. We are not in the secrets of those manufactures, but we are led to believe they are made from that. They call them leadless paints. They are very well for a nice soft finish, and you get very good results, but I would not like to say that they have the durability that we put into our lead jobs.

6750. For good, durable work you use paints with a lead base?—Yes, if I were to give a guarantee of a durable job, like the jobs you see in the public buildings in the city. If you go round some of those public buildings you will see that they have stood for fourteen and fifteen years without being repainted. I would not like to give that guarantee with any of these other paints.

6751. Can you mention any properties in the city where you have had special experience and on which you formed your opinion as to the value of zinc paints?—I have never used a pure zinc on a job, because I am practically sure in my own mind, and I have seen jobs that have been finished with zinc where they have cracked up. That is why I refuse to use zinc.

6752. Can you mention any instance where a place has cracked up?—There is one case in point, quite near—some of the other members of our association have been in more personal touch with it—and that is “Paris House.” That was treated with zinc, and it cracks very badly. Some years ago Stedman’s used to have all their property painted with zinc and nothing else. They found that the zinc showed a good gloss or kept its gloss considerably longer than the lead paint. But they eventually found that those properties were not weather-resisting. If you take zinc and put it under a microscope, even after the job has been finished within twelve months, you will find that job has cracks all over it. You will not find that with lead. It does not seem to have the affinity that lead has.

6753. Did they afterwards divert to lead paints?—I believe they did.

6754. We have had something here about non-poisonous paints—do you know what they are?—Yes, they are what I have just been speaking about—those paints that are used in the inside. We use a lot of those at the present day. You get a very good general tone effect from them, but I would not like to place the same reliance on those for a number of years as I would on a job brought up on a lead base.

6755. On what surfaces do you use those non-poisonous paints?—Walls and ceilings.

6756. Places where you would otherwise put kalsomine or paper?—Yes, or paint. You certainly get a better finish with it than you do with kalsomine, because you have a washable surface.

6757. Do you notice any fumes arising from non-poisonous paints?—Yes; the fumes from these so-called non-poisonous paints are stronger than they are from paints made up with leads and oils and turps.

6758. Can you say whether or not they are more upsetting to the operative painter than the fumes from lead paints?—I know some of them seem to affect your stomach and to upset your bile, and that sort of thing. The smells of those things annoy you more than the other paint does, according to my experience.

6759. While we are on that question of the fumes from paints, can you say whether they become less noticeable after you have been at the trade for some time?—Undoubtedly. As I said before, the fumes of paint do not annoy a painter like they would annoy you, for instance. If you were to go into a room and start painting it you would be queer at the end of the day, because you would not be used to the smells. These smells or perfumes, or whatever you like to call them, are more an annoyance to the mind, I think, than they are to the body. If you take a man engaged in removing stuff from a butcher’s shop, the stench from those carcasses would upset him, but

those men who are employed at it regularly get fat on it. The same with sanitary-carters; it does not upset those men, but if I were to do their work for a day I would be upset for a week afterwards.

6760. In all your thirty-three years' experience have you ever got any lead into your system in such a way as to become injurious to you, as far as you know?—I have no knowledge of it, if I have. I probably have some lead there, but it has not worried me, and I have never had any cause to be treated for it. I may have it, and I may have other things, but they are not apparent.

6761. DEPUTY-PRESIDENT: How many men does your firm employ ordinarily?—About fifteen. It all depends on the year; sometimes twelve, sometimes thirteen, and sometimes fifteen.

6762. Would all of them be operative painters?—Yes.

6763. Would thirteen to fifteen represent the average of a series of years past?—Over a series of years it would be about twelve. Taking the last five years the average would be about twelve men.

6764. Have you studied the labour turnover of your business?—In what way?

6765. Do you change your hands frequently?—Not the regular hands. One of my hands has been in my shop now longer than I have been there myself; he has been there about thirty-five years. I have other men of thirty years, twenty years, and fifteen years service, and they are still with us.

6766. So that there would be at least four men who have been with the firm for over twenty years?—Yes.

6767. And of the others?—One was brought in as an apprentice and served his time there; he is now one of my leading hands, and his own son is apprenticed at the present time.

6768. Is that one of the four men?—Yes. The one who has been there longest had his son apprenticed there, and he has been a journeyman for some years.

6769. So that would account for six men—the four men who have been with you a long time, and two sons of those men?—Yes. The other men generally work round three or four shops in the city. We generally have the same men passing round from time to time.

6770. So the other six men would not be constantly in your employ?—No.

6771. Of those men constantly in your employ four at least have been with you for over twenty years?—Yes.

6772. In connection with the cases of the other six who do not remain with you constantly, have they changed from year to year, or are they the same six men who have been working with you for the last five years?—We get a different number of men. Sometimes if we are rushed with business we have men probably whom we have not seen for some years. As a rule the same men come back from time to time. When one shop happens to be slack, the shop they have been used to working in has probably room for three or four men, and takes them on. We get the same men back perhaps three or four times during the year.

6773. Can you tell, then, whether they are in good health or otherwise?—I have known a lot of these men for years—almost as long as I have been in the trade. They seem to be going on just in the same way as I am myself, gradually getting older, but nothing particular to worry us.

6774. Are there any elderly men in the painting trade?—Yes, I know of several.

6775. What would you call elderly, for a painter?—Well, elderly is rather a wide term.

6776. You would attribute a meaning to it in your own mind?—I would say a man over 60 was getting elderly.

6777. Would you call him elderly in the painting trade at 60?—Yes, if a man gets over 60 you think he is getting on the elderly age.

6778. But until a man reaches 60 you would not regard him as elderly?—Certainly not; I would not.

6779. At what age would you expect a man to retire from the occupation?—That never occurred to me.

6780. You have some men with you who have been with your firm for a long time?—Yes.

6781. You cannot depend upon having their services for an indefinite period; you must anticipate that at some time they will be leaving your service, and you will have to replace them?—The only thing that will take those men out will be death, as far as I know. They may outlive me or I may outlive them. I do not know anything else that will make them go.

6782. You mean death at the end of a long life?—Yes.

6783. You do not mean an untimely death?—No; I mean a natural death.

Cross-examined by Mr. CONNINGTON:—

6784. I suppose you will admit that there is a danger of a painter becoming lead-poisoned through the use of lead-paint?—So they tell me.

6785. Do you doubt the possibility?—I have said that the only experience I have had is the one I mentioned. That is the only case that came under my notice.

6786. As a master painter, do you doubt the general belief that it is possible for a man to get plumbism as the result of working with white-lead?—No, because we have statistics to prove that some men do get that way. That is the only evidence we have.

6787. You have further evidence: you know one man who was suffering from plumbism?—Yes, that is one case that came under our notice.

6788. How long ago?—About twenty to twenty-five years.

6789. Since then you have had no cases brought under your notice?—Not that I know of.

6790. Might there be any that came under your notice which you have forgotten?—I do not think so. Of course, we are all apt to forget things at times, but I do not know of any that I have forgotten.

6791. However, you do not know—

6792. Mr. MANNING: He says he does know.

6793. WITNESS: My candid opinion is that I do not know of another case. It is impossible for a man to say that he may not have forgotten, but I do not think there is the slightest chance that I have forgotten.

6794. Mr. CONNINGTON: However, you do not remember any other case?—No.

6795. At present how many men have you in your employ?—Thirteen.

6796. And your regular hands constitute about six?—Six men are on continuously. That is to say, I would not say the others were not regular hands, because the hands are always backwards and forwards in the shop.

6797. They are men who are taken on and put off as the exigencies of the trade require?—Yes.

6798. They may come back to you and they may not;—it will depend on whether they are working for someone else?—Yes.

6799. Your regular staff is limited to six men?—Those are men who are on constantly.

6800. Take the case of a railing painted with white paint; after being on for two years the oil has dried out of that, has it not?—In some cases.

6801. In your own mind you fix some period when the oil will have dried out of the lead?—Yes.

6802. Do you think there is any danger to the public or to children if they rub their hands along the dry surface?—I have already said that in all my white-lead or any work like that I never finish my work with pure lead; I always finish up with 25 per cent. of zinc to stop that oxidising, because the lead oxidises quicker.

6803. Near the ground?—With all our work, because we are all troubled with salt air here. If you go to a job where you see a special amount of powder, I think that is due to adulterated lead rather than pure.

6804. Take the case of pure lead; say, a railing is painted with pure lead-paint;—at the stage when the oil is dried out is there any danger then of an adult or a child rubbing its hands along the surface?—If it is a pure lead paint you will get it in about two and a half to three years' time. Then your leads will start to oxidise and powder.

6805. Then is it not dangerous to child life and to grown people?—It is a bad thing to take into your system.

6806. Is it not a danger to children who rub their hands on it and afterwards put their hands into their mouths?—There is a danger of that.

6807. A danger of them becoming lead-poisoned?—I would not say that. The danger is that they would take the lead off that fence, and they may absorb it into their system. They can get it by rubbing it.

6808. DEPUTY-PRESIDENT: Mr. Connington, unless the witness has medical expertness also he cannot go further than that. You do not want him to go further than that, that the powdered lead can be rubbed off on to the hands and transferred from the hands to the mouth.

6809. WITNESS: It can be done.

6810. Mr. CONNINGTON: I think the witness has expressed an opinion as to the healthiness of the trade.

6811. DEPUTY-PRESIDENT: He cannot tell you what is the effect of oxides of lead on the human economy, perhaps. I mean, he would need to have some medical expertness to do that.

6812. WITNESS: I am not a doctor. I cannot tell you how much lead we can absorb and how much we can take into our system and get rid of again.

6813. Mr. CONNINGTON: However, you believe that there would be a danger to life if they absorbed the lead?—I say there is a danger if you rub your hand on the paint and put it in your mouth. There would be danger certainly.

6814. Would not there be danger by mere contact with your hand and leaving it there?—No. I do not think there is any danger in that, but there would be if you swallowed it. I still maintain that inferior paints powder probably quicker than white-lead does.

6815. In other words, inferior lead paints will not?—Not inferior leads, but adulterated leads.

6816. Will you say that lead paints will have more resistance than an adulterated paint?—Yes, that is my experience.

6817. Those adulterated paints will powder at an earlier date after they have been put on than the lead paints?—That is my belief.

6818. With regard to paints with a zinc oxide base, there is no danger there?—Do you mean all zinc?

6819. Yes, all zinc; there is no danger to human life in that case, is there?—Do you mean as regards oxidising, because zinc will not oxidise.

6820. As regards the handling of the painted surface by children or grown people?—Well, you see, the thing does not oxidise.

6821. Then it will be perfectly safe to paint a railing with zinc paint?—From that point of view it would be. It would be very foolish for you to paint your fence with a zinc paint, though, because it would not be of as good service to you.

6822. You mean it would not be durable?—No.

6823. But from the standpoint of the health of the people who come into contact with that fence it would be safer than the lead paints?—It would be safer to the person passing, but it would not be safer to the painter.

6824. We will deal with the person passing, or the children who handle the fence; which would be safer for them?—Yes, but you would gain that result by putting about 25 per cent. of zinc with your lead. That would overcome all that difficulty.

6825. But pure zinc paint would be perfectly harmless for children or passers-by?—I would not recommend it.

6826. I am not asking that. I ask you, it would be perfectly harmless?—Yes, it would be harmless.

6827. With regard to what is known as leadless paints, is not the use of leadless paints coming into greater vogue than ever before? Is not the amount of leadless paints consumed every year increasing?—Undoubtedly.

6828. You know that?—Yes.

6829. Both for outside and inside work?—It is not my experience outside.

6830. But you will admit that it is for inside work?—Yes.

6831. Do you know, as a matter of fact, that the bulk of the inside painting is done with leadless paints?—At the present time, yes, for wall surfaces and ceilings.

6832. The door is usually varnished or coloured with stains?—It is painted with lead paints—the doors and windows.

6833. I thought the fashion was to stain them?—There is a lot of staining done, but there is a considerable amount of painting still done also. We would not use leadless paints on those.

6834. So far as the colouring on the roof and the walls is concerned, the leadless paints are mostly in use?—A lot of them are in use at the present time.

6835. For doors and windows you say that lead paint is the thing principally used?—Yes.

6836. You are quite sure of that?—Certainly. That is my own experience as regards our own business. I cannot speak for anybody else. I can only tell you that if we were working on woodwork we would not consider we were giving our clients a fair thing if we were working it with leadless paints.

6837. That is your opinion?—Yes, and my candid opinion, too.

6838. Coming to the question of outside work, do you not know that the amount of painting work done with leadless paints on outside jobs is increasing?—No.

6839. You do not know that?—No.

6840. You must admit that you know that there is more of it now than there used to be ten years ago?—I know this, that they have things on the market at the present time which are adulterated leads.

6841. They are not zinc paints at all?—Some of the paints at the present time are adulterated with other materials, and a percentage of zinc put into them, but personally I refuse to use zinc.

6842. Are you alleging this, that some of the paints which are termed leadless paints are not leadless paints at all?—It depends on what you would call a leadless paint. Can you state one particular stuff that you would call leadless paint?

6843. What do you call leadless paint?—I am asking you.

6844. Mr. MANNING: The witness misunderstood your question. What the witness said was this, that there are many paints that are sold now that contain adulterated lead. He did not say leadless paints. Then Mr. Connington asked him, "Do you say that the leadless paints are adulterated lead?" The witness had not said that at all. He said, "There are many paints that are sold now that are adulterated lead." Evidently he misunderstands the position that was put to him by Mr. Connington.

6845. Mr. CONNINGTON: I asked him was it not a fact that the quantity of leadless paints used of late has increased in volume. Then the witness answered me something to this effect, that there are a lot of paints which are a mixture of adulterated lead paints. Then I asked him, "Are you alleging that some of the paints known as leadless paints are only adulterated lead paints?"

6846. DEPUTY-PRESIDENT: And the witness said, "I do not suggest that."

6847. WITNESS: I think there is a little misunderstanding.

6848. Mr. CONNINGTON: What do you term a leadless paint;—is not that a paint where there is no lead used in its composition?—There is only one definition of that; it would be a paint without lead. What do you call a leadless paint, that is what I want to know?

6849. DEPUTY-PRESIDENT: Mr. Connington, you want to know whether paints which you designate as leadless are used now in excess of paints that are composed of a lead base in outside work?

6850. Mr. CONNINGTON: Not yet. I asked, has not the use of leadless paints increased during recent years?

6851. DEPUTY-PRESIDENT: In order that the witness may give you an intelligent answer, what do you yourself mean by a leadless paint?

6852. Mr. CONNINGTON: A paint containing no lead, such as what is known as zinc paint.

6853. DEPUTY-PRESIDENT: No carbonate of lead, or no lead of any kind? There is sulphate of lead and carbonate of lead in the ordinary lead base paint. The sulphate is not so soluble as the carbonate, and is not regarded as being poisonous and dangerous. Does your question refer to paints that are entirely without lead of all kinds in their composition?

6854. Mr. CONNINGTON: They are entirely without lead of a poisonous character.

6855. DEPUTY-PRESIDENT: You mean without white-lead?

6856. Mr. CONNINGTON: Yes.

6857. DEPUTY-PRESIDENT (*to witness*): Mr. Connington means, has the use of paints that contain no carbonate of lead increased of late years for outside work?—I answered that in the affirmative for the inside work, and I also said that I was not prepared to say that it is used to excess on the outside work, because I do not know that it is.

6858. Has its use increased in connection with outside work?—I know that we have a lot of so-called silica paints that are used outside.

6859. Mr. CONNINGTON: Is that paint that contains no lead?—No lead at all. There may be there are limes and whittings and silicates brought into that, and oils ground in. It is not what we would call bringing up a painting job.

6860. Whether it is a good job or a bad one, is the quantity of that material increasing?—Unfortunately for the owners of property.

6861. But is it increasing?—Unfortunately.

6862. I only want to know whether it is increasing. You say that it is increasing?—Because we have a lot of big buildings at the present time where they get these things because they are a cheaper article.

6863. The people are using more of it, and they think they are getting a cheaper job done?—As a matter of fact they are saving money.

6864. But there is a lot of that class of paint being used of recent years?—But that is not due to the objection to the lead; it is a matter of cheapness.

6865. As to the volume of work done with paint containing lead and the volume done with paint mixtures—leadless paints, or containing lead that is non-poisonous—which is the greater? Is there more work done with paint which contains lead, or with the mixtures regarded as non-poisonous, which do not contain lead of a poisonous nature in their composition?—I cannot give you statistics for the whole trade. I can only speak from my own personal experience. From our work, I should say 75 per cent. is lead.

6866. You say 75 per cent. of the paint you use contains lead?—Yes.

6867. And about 25 per cent. is what is called non-poisonous paint?—What they call “special paints,” and lime. Do you take lime as a poisonous paint?—Lime work is done at times.

6868. In your business, the proportions are 75 per cent. and 25 per cent.?—Yes, about that. I cannot swear to the figures.

6869. Why do you use this leadless paint at all?—Because we are requested to do so.

6870. Your customers request you to do the work with those paints?—Yes.

6871. On what grounds do they insist upon them?—On the matter of price.

6872. Can the work be done cheaper with those paints?—Yes, undoubtedly.

6873. Cheaper than where the work is done with the lead paints?—Yes.

6874. Am I right in suggesting that the tendency, even in your trade, is for customers to ask for their houses to be painted with these substitutes?—No.

6875. It has not increased?—No.

6876. But at the moment it is about 25 per cent. of the whole of your trade for outside work?—Yes.

6877. What proportion of the inside painting done by you is done with these leadless paints, or non-poisonous paints?—As I said before, the ceilings and walls of houses now are treated with the leadless paints. Very often they are used in preference to kalsomine.

6878. I suppose the ceilings and walls represent about 95 per cent. of the inside painting?—No, 75 per cent., sometimes less. At times, in rooms, you get considerably more woodwork than in proportion to this room we are in.

6879. Take this room: would the woodwork be about representative of the proportions to be found in the average dwelling?—About that.

6880. I should say it would be about 90 per cent. surface and 10 per cent. wood?—It is considerably more.

6881. You think about 25 per cent. of wood and 75 per cent. of surface—there is the ceiling, you know?—I am aware of that. You have a big partition, here.

6882. With regard to shipping work, have you done any of that yourself?—About five or six months.

6883. How long ago was that?—I was five months on one ship, about twenty-six years ago, I think—the time the “Sobraon” was the first training ship. I was then doing all inside work. I was doing professional painters’ work.

6884. Is that the only experience of ship work?—I was on two other boats, but six or seven months would cover the whole of my experience in that direction.

6885. That was about twenty-six years ago?—Yes.

6886. With regard to rubbing-down, it is usual, is it not, to prepare the surface on either new or old work by rubbing-down before you start to paint?—Yes.

6887. Is there no danger of the fragments of lead in the air being inhaled by the men?—You might get a few particles, but I do not think sufficient to be of any detriment to you.

6888. If some of the authorities regarding rubbing-down regard that as the most dangerous part of the work, do you agree with them?—No, I would not agree with that. You cited this room just now: you have a painter alongside you. If he went along and took the glass-paper over the room at the present time he would, I think, get a very small percentage of lead from it. There would be little “nibs” come off, but that is the only thing you want to remove. Very little lead will oxidise in the inside work. I can take jobs which have been painted in this city for fifteen years—

6889. All the authorities start off by suggesting the rubbing-down is really the most dangerous part; but you do not agree with that?—I am only here to tell you all I know about the trade.

6890. You do not agree with that view?—I do not see the rubbing-down is at all injurious—not to any severe degree. Suppose anyone were to take the sand-paper on that door and rub it down, what would he find? He would find most of the paint on the sand-paper and not in the air. The softness of the paint would make it adhere to the sand-paper.

6891. You do not agree to the suggestion that all the time a man is rubbing-down the fine particles are floating in the air?—I do not.

6892. And that he is likely to inhale them?—I do not. We used to get that considerably more in the earlier days, when we used to have to rub down the walls in this dust. There was not an inch of the wall not rubbed-down; but it is not done to-day.

6893. You do not do it, you mean?—None of us do. You can only get that proof by the words of the men working in the other shops. We practically know what takes place in one another's business.

6894. Do you not do rubbing-down?—I say work at the present day is not nearly the same amount of work as in the early days.

6895. There is not the same care taken now as there used to be?—No.

6896. Not even between coats?—In the old school it was unnecessary work.

6897. You think they were too particular?—Yes, too particular. Take the case of the ship work you mentioned. There we would go on to a cabin and put a solution of caustic soda on the wood and rub it down with paper; we would give it five or six coats of that, with very little paint, and rub down between each coat. Now you can get the same results with three coats.

6898. You do not use caustic soda now, do you, for cleaning off?—Yes, at times.

6899. But it is not generally used?—In some classes of work you must use it.

6900. It is better than burning off, at times?—It is used for different purposes. Some portions of the work you would use caustic soda on, and in another place you would burn off.

6901. Some of the transports used caustic soda to clean off, did they not?—They might do some work on transports, but you could not carry out the same work in a house.

6902. However, you have given us your opinion as to the rubbing-down—you do not think there is as much of it done now as used to be done, as far as your experience goes, and from what you have learned from the men?—That is so.

6903. When you are preparing the surface for enamel, do you rub down?—Yes.

6904. You flat it and rub-down between each coat?—Yes.

6905. As carefully as in the old days?—No, because in the old days we put on five or six coats.

6906. Now you only put on——?—On the ordinary work, the new doors, four coats, and sometimes three.

6907. You are not giving the same work as you used to give?—We are not giving the same work.

6908. Your firm is not quite so large as it was during the last few years, is it? The average number of men employed is not so great as it was prior to three or four years ago?—It has been better this last two or three years than the previous three years.

6909. Then it has been improving?—Yes.

6910. The casual quantum has increased?—I think the average is about fourteen men for the year. The actual average of men for the last twelve months, the financial year, pans out at 13·6; but if you take them on their hourly work (and they do considerable overtime) and take the basis as forty-four hours or forty-eight hours per week you will find the average is much larger. That is, the average of men who have passed through the shop.

6911. You have calculated the number of hours you have paid for, and have then taken the number of men you have employed?—Yes.

6912. Say, for example, two men worked twenty-four hours, if it were possible to work it for a week——?—You take the number of men and the number of hours per man. The total number of hours they have worked in the year is taken, and you divide it by the number of men.

6913. DEPUTY-PRESIDENT: But are you not seeking for the number of men?—You may divide it by the normal day, if eight is the number of hours in a normal day. You take the number, the total number, of hours and divide it by eight, and then you find presumably the number of man-days.

6914. WITNESS: I do not know how else you can do it.

6915. Mr. CONNINGTON: Say, for example, you had two men working twenty-four hours, if you divide that by eight it would appear your average was six men for eight hours each. That is right from the standpoint of calculating the amount of work done; but for the purpose of ascertaining the employer's experience of work it would be absolutely misleading, because as a matter of fact he had only two men to get his information from.

6916. DEPUTY-PRESIDENT: If you divide it by forty-four you get it out by the week.

6917. Mr. CONNINGTON: Say you were calculating the rate to be paid, whether the industry was a weekly or a casual one, by taking the number of hours worked and dividing it by the number of men employed, the result might show fifty men for the whole year, while the actual number might be about 200 or 300 men for the period of three or two months of the year. For my purpose, the way of finding out what would be the average is, how many men daily the witness would have in his employment—daily—so that he could have the benefit of the experience of twelve or thirteen men or any given number of men each day, and the average for the year. It is not that he might have experience of, say, 500 men on twenty days, but that he would have thirty persons, perhaps, always under his eye, seeing them at work.

6918. Apparently you have six regular, constant hands?—

6919. DEPUTY-PRESIDENT: There cannot be much doubt, beyond the view of impression, when a man employs thirteen men.

6920. WITNESS: I maintain the average runs out considerably larger.

6921. Mr. CONNINGTON: Sometimes you have quite a lot of men in your employment—sometimes thirty, and at other times six?—That is right. The only way you can get at it is to take the year's work and average your men out. If you try to take the individual man you would find the percentage would work out larger.

6922. DEPUTY-PRESIDENT: What is your experience of absenteeism among your employees;—do you know what I mean by absenteeism?—Yes. My experience is that we have nothing to show us these men are absent from any other cause than what we know as general complaints.

6923. What time would you expect a painter to lose in a period of a fortnight, we will say?—I should not expect him to lose any in a fortnight.

6924. What time would you expect him to lose in a month?—I should not expect him to lose any in that time. It may be he would lose two or three weeks in the year.

6925. In days at a time?—The only aspect I can speak from is, those constantly in the shop. They are the ones we have an absolute check upon. We cannot speak of men with us for two or three months only. We may have men on for three months, or six months, and probably they will be there the whole time, without a day's sickness.

6926. Would you expect a man to lose two or three weeks in the year, if he were with you all the time?—Yes, about that.

6927. And you would expect a man casually employed, say, for a job, to lose time proportionately?—Yes, about that. I do not know what the average man's sick life is. I suppose it is about that.

6928. It is a mere guess;—you do not say two or three weeks, as a result of a study of the situation?—I can give it you definitely. I can tell you exactly the time they have been away.

6929. Have you kept records?—I keep records of every man who goes through the shops, every day they are working. One man we had last year was away for three weeks through sickness, at one time.

6930. What was his ailment?—He had eczema, skin disease.

6931. Attributable to the pigments or ingredients in the paint?—I do not think so.

6932. That is one case?—They are away through colds, &c., but we have had no men away through serious illnesses. Say, for twelve months, the men have not lost very much time. One man carries a salary of £286, another £275, another £265, another the same, another £262, and another £250. These men could not have been losing much time.

6933. Is that the full yearly salary that they can draw?—Yes.

6934. That is the upward limit of salary?—That is what they have been paid this year.

6935. Is that what they actually draw, or what they could have drawn?—These are my returns.

6936. What could they have drawn had they been there every day?—I do not know if these men have been away any particular time at all.

6937. Do you keep a record of the absences of every man?—Yes.

6938. Can you show that shortly, without looking over the whole of your pay-sheets?—Yes, I can let you have it to-morrow.

6939. Thank you. There is another matter I would like you to give the Board some information upon. When you mix zinc with lead in the proportion of 25 per cent. of zinc to the total weight of the product, the total bulk, do you regard the mixture as being insured as against oxidation?—I do not say absolutely insured, but it is a preventative of oxidation. After four years' time you do not find it oxidises like absolutely pure lead must do. It stands the salt air better. I think there is quite sufficient to prevent any oxidation to cause any trouble at all. We have tried it out for this purpose, that we might use a percentage of zinc with safety that will not cause

cracking. That is the trouble we have with zinc, the work cracking. If we have got a large percentage of zinc in our work the result is that it cracks, which causes no end of trouble.

6940. But that is due to the process of contraction, not a process of chemical alteration?—That is right.

6941. But the other is the chemical effect?—Yes, the oxidisation.

6942. You think the chemical effect on the lead is prevented when you mix with it some 25 per cent. of zinc?—Yes.

6943. Mr. MANNING: You spoke of the silicate paints you use sometimes on outside work. Do you know what is the composition?—I cannot say that.

6944. Do you know whether or not there is any lead in it?—I do not believe there is one atom of lead in that.

6945. There is a proprietary line known sometimes as water paint?—Yes, they call those water paints.

6946. They are an article used upon the outside because of their cheapness?—That is right.

6947. You would put one coat on, sometimes, to give a decent appearance. Are there any weather-resisting properties in it?—Very small.

6948. You do not compare it with white-lead at all?—No.

6949. DEPUTY-PRESIDENT: You will let the Board have your “absences” on the part of your employees for as long a period as you can definitely prepare them?—Yes, certainly.

(Witness retired.)

JAMES PERROTT, sworn, examined by Mr. MANNING:—

6950. What firm do you belong to?—I am proprietor of James Perrott & Co.

6951. What position do you hold in the painting trade?—I am president of the Council of the Master Painters and Decorative Signwriters of Australia. I have been connected with the trade for about forty years. I was 12 years of age when I first went into it.

6952. For some years you were an operative painter—until quite recently, I suppose?—Yes; I am still an operative.

6953. So that you have had very considerable experience, I suppose, of the work of the operative painters?—Yes.

6954. What was your health, when you first started in the industry—do you remember?—I had good health, as far as I can recollect.

6955. Have you had good health ever since?—Yes.

6956. Have you suffered from any illnesses you attribute to working with lead paint?—No.

6957. I suppose, in the course of your long experience, you came frequently into touch with other operative painters?—Yes, I met a great many other men.

6958. Did you make any observation at all of their state of health, from time to time?—I only noticed between their health and my own.

6959. Or between theirs, and others engaged in the industry?—No.

6960. What about absenteeism—people absent from work from whatever causes;—can you tell the Board what you have observed in that connection?—I must honestly say I never knew of any, to my knowledge.

6961. It was not sufficiently pronounced, because you would have noticed it; that is what you mean;—you do not mean a man was never away for a day or two?—I do not remember seeing any who were away for anything else but business, excepting one man who has been with me who suffers from quinsy—he is away in the winter for a week or two.

6962. However, absenteeism, according to you, is practically negligible?—Yes.

6963. How many men do you employ, on an average?—I should think about twenty.

6964. Do you mean twenty men are employed permanently by you?—No, there are ten or twelve permanent—all the time. Then they go up to thirty or forty men.

6965. You have, on an average, about ten men per day?—Yes.

6966. Do you notice any indisposition amongst those men, or are there any complaints made as to the conditions under which they work?—No.

6967. Or in particular, any complaints as to working with white-lead in paints?—No.

6968. Have you ever had complaints from the painters, at all, about using white-lead in paints?—Never.

6969. Have you heard them complaining amongst themselves?—No.

6970. What proportion of time is spent by men in using white-lead paints. They use lead paints, and are doing other work and using paints which are not lead paints, at times. What percentage of their time would be devoted to the use of lead paints, do you think?—About two-thirds.

6971. I will not take you through the operations of preparing surfaces, but I will ask you particulars with regard to some of those operations. We have had evidence here from time to time about methods of preparing surfaces, and will ask you first about the sand-papering after burning-off. Do you recognise anything injurious to health in the sand-papering for burning off?—No, I do not.

6972. Is there any dust caused during the operation?—There is a dust, yes.

6973. Have you ever known any injury result to the painter through the burning-off and sand-papering?—Not in my experience.

6974. As to the burning-off itself, have you observed any injurious effects in that?—No.

6975. Or any unpleasant effects?—Well, the burning-off oil would give an unpleasant smell.

6976. That is, the fumes coming from the oil?—Yes.

6977. Now, with regard to the rubbing down of coats already put on, to rub off the nibs, do you recognise any danger from dust as far as that is concerned?—I do not consider there is any dust, because if you are rubbing off between coats, which is green paint, the nibs stick to the sand-paper and clogs. The sand-paper will show that.

6978. With regard to mixing, have you, yourself, mixed paints?—Yes, I have.

6979. Have you used the dry lead?—Yes.

6980. And that is not used now, is it?—No, I have not used dry lead for a considerable time.

6981. What ordinary precautions do you observe against becoming affected by the lead in your ordinary working as an operative painter?—I have never used any protection.

6982. You have had a wash occasionally?—Well, other than personal cleanliness, to my knowledge I have never taken any medicine or done anything that anyone else would not do outside of that work.

6983. Do you regard personal cleanliness as the important thing?—I look upon it in every calling as important—more so in a calling where you have paint over your clothes.

6984. You have told us about the rubbing down part of the work, but have you noticed any injurious effects from the actual painting itself—putting the paint on?—Never, in my experience.

6985. Have you noticed any unpleasantness while it is being done, by the smell?—Only in some proprietary lines we use in place of kalsomine.

6986. Which are most noticeable?—It is noticeable in the proprietary paints at present taking the place of kalsomine. The smell of whatever the spirits are is very strong. Whether it is petrol or kerosene, I do not know.

6987. I want you to give the Board your experience of these paints as compared with lead-paints;—just make a comparison between the two?—My experience between the two is going back a few years. We do not have quite so much burning-off then as we have now, and in most places the cause of the burning-off is the zinc, because it opens up to such an extent and fills up the voids and clogs up the mouldings of outside wood work that must be burned off, thereby causing much more burning-off than was formerly the case. I do not remember, in the early part of the trade, as much burning-off as at present. A great amount of that, perhaps, is attributable to the amount of zinc used.

6988. Are you referring to the outside work?—Yes.

6989. DEPUTY-PRESIDENT: Is that because the elements do not reduce the zinc to powder, and they do reduce the lead to powder?—I do not say that, because zinc will oxidise just the same, in time, as lead.

6990. Mr. MANNING: In a longer time?—Yes.

6991. Why is the inside burned-off with zinc and not with lead;—has it anything to do with the cracking?—Yes; it blows, and especially across the mouldings, indents, &c.

6992. There is a standing example of that, is there not—of the result of zinc paints—along the road, at Paris House?—Yes.

6993. You can see where the zinc has been actually burned off there, and a new coat put on, and they cannot get rid of it yet?—No.

6994. Mr. MANNING: It might be instructive if the Board were to—

6995. DEPUTY-PRESIDENT: The Board would want to know where the zinc paint was obtained from, Mr. Manning. It may have been very inferior.

6996. Mr. MANNING: It has left its permanent marks on Paris House.

6997. Do you know whether we can find out what paint was put on that building?—I suppose it is to be found out from whoever did it. I can only say that from my own personal experience I have come across it many times—that is, other work on houses. One in particular was a job Mr. Grice and myself did. There were two houses in Manly, and he painted one with white-lead and one with zinc. At that time the master painters of New South Wales were making various tests. They make more tests in the other States than here. We have tried for years to get the Government to give us a piece of ground for testing various materials. The Government offered a piece in such a position that we could not accept it. At this particular time Mr. Grice and myself made a test of two houses at Manly. We painted, as I have said, one with white-lead and the other with zinc. After two years we took glasses (microscopes) down there and looked at the houses. You cannot see cracks in zinc without powerful glasses. The lead was slightly exposed on the face, but after removing that exposed powder there was not much of it. The wood work was perfectly covered from the elements—the weather. But in the case of the zinc the cracks were very noticeable, open right to the bare wood work. Our experience in that case showed us that the zinc—

6998. The crack in the zinc, was that obvious without the aid of the microscope?—No.

6999. So a person might easily be misled?—Yes; in twelve months' time it would be, I suppose, worse again.

7000. That was after how many years?—Two years.

7001. Have you ever had any other experience in comparing the two things?—No; but I saw that test.

7002. As far as a general description goes, what would you indicate as being the chief advantages of lead-paints over zinc for outside work?—My experience teaches me the lead is the best thing.

7003. For what reason?—That it protects the wood work longer than zinc does.

7004. That is because of its weather-resisting properties?—Yes, and it is easier to apply. It does not require so many coats as the zinc does, and very often, on account of people wanting to know when you go into their houses how long it will be before you go away again, zinc is used. If you load the zinc up with dryers you burn it up, and if you do not do so you cannot follow it quickly enough. It does not dry quickly enough to follow it up with another coat. If you do follow it up with another coat in two or three days, the result is that the face of the zinc will oxidise, and the contraction will be much greater than if you did not follow up so quickly. With white-lead you have a better chance of following it up with the final coats of paint, which is more protective to the particles you are covering.

7005. So much for the comparison of the paints for outside work;—what would you say as to the comparison of them for inside work?—For inside work I have never used zinc—not for inside wood work.

7006. Do you find the lead-paints you use inside are always satisfactory?—Always

7007. There are no complaints of any kind about them?—Not in my experience.

7008. Why have you not used zinc paints inside?—Because you cannot get the same result. The result I get on the outside would not be good enough for me on the inside.

7009. You are not justified in carrying your experiments further for the inside?—No.

7010. You know the lithopones which are used?—I know the proprietary paints, and I am given to understand by the advertisements they are based on lithopone or zinc.

7011. Do you know what they are used for?—We are using them at present to take the place of paper and kalsomine on walls and ceilings.

7012. Do you use them for any other purpose?—No.

7013. In your opinion, would they be suitable for any other purpose?—They would not be lasting on woodwork.

7014. Have you experience of the silicate paints on the outside?—Silicate of soda, yes.

7015. Those are called water paints. What do you say as to those;—do they bear any comparison with lead at all?—None whatever.

7016. They are only cheap water paints, if a man wants a job done cheaply?—That is so.

7017. For outside use, have you ever used a mixture of lead and zinc, apart from the proprietary paints?—No.

7018. DEPUTY-PRESIDENT: Of the men who are regularly and constantly employed by you, how many have been with you for a number of years?—About ten.

7019. I understand that the men constantly employed by you number ten?—Yes, constantly.

7020. How many of those ten have been with you for a long time—long, of course, in respect to their age?—Fifteen years.

7021. One has been with you for fifteen years?—More than one.

7022. How many of the ten have been with you for over fifteen years?—I can say two for fifteen years.

7023. What age men would they be?—Both were apprentices of mine, and I suppose one would be somewhere between 40 and 45 years old; the other would be close on 40 years. Those two apprentices I am speaking of were away from me for a while, after serving their time, and then they returned and have been with me ever since.

7024. Presumably they would be so, if you are counting their apprenticeship in the fifteen years of service?—Yes.

7025. And the other eight men, how long have they been with you?—Ten years, six years, down to five or four years.

7026. What do you say would be the average age of the ten constant hands you employ;—are they young or middle-aged men?—They are middle-aged. I should say they are on an average about 40.

7027. So we may take it the average age of your constant employees is about 40 years?—Yes, somewhere about 40.

7028. Have you kept a record of their absences from work?—Yes, I have, for the last three or four years.

7029. You have, from your own experience, a rather favourable impression of the effect of the occupation upon health?—Yes.

7030. Have you met any cases at all of lead-poisoning amongst painters?—Never in my life.

7031. Would you be surprised to know that when one person in the community, excluding the painters, is brought to his death by lead-poisoning, something like forty painters suffer the same fate?—I should have thought painting was the healthiest of any of the building trades occupations, on account of the numerous changes—the different climates they are in. It is a long job in Sydney if it lasts three months. They are always in different suburbs, and occasionally in the country, and there is an enormous amount of outside work. When they are inside the windows and doors are not closed up to exclude the air.

7032. Those are all reasons why they should be healthy?—Yes.

7033. Would you be surprised to know that when one man in the general community dies of Bright's disease, three painters die of that disease?—Yes.

7034. Have you seen any indication of that disease amongst the employees in the industry?—No.

7034A. In the case of tuberculosis, have you seen indications of that amongst operative painters?—No.

7034B. You have no reason to suppose, from your experience, that for every two men who die of tuberculosis in the ordinary community, three painters die of the disease?—I did not know it.

Cross-examined by Mr. CONNINGTON:—

7034C. You know Paris House?—Yes. I did not know it was painted with oxide paint. I said by what I saw and by what experience teaches me, it was painted with zinc oxide, because if it had been white-lead it would not have been as it is.

7034D. No one denies it has been so painted. You know the whole of the Rocks area is painted with zinc oxide?—No.

7034E. Have you ever been around that area?—No. I have been there, but I do not remember doing any work, so have not had occasion to go around.

7034F. Do you know anything about the district which would incline you to think the houses were ill-painted—that is, those coming within the purview of the Government?—No. Do I understand from you that the houses in the Rocks area are painted with zinc white?

7034c. With zinc paint?—Do I understand it is pure, or is there anything else with it?

7034u. I am given to understand it is zinc paint?—It is news to me if they are painted with pure zinc. The Government works are not usually painted with zinc, pure white.

7034i. They are painted with zinc paint, with colour through it, but still it is regarded as non-poisonous?—If it is coloured it cannot be painted with pure zinc; it would have earth matter in it.

7035. As to zinc paint with some earth matter through it, how would it compare for outside purposes with lead?—Lead would be better, with earth matter in it, in my opinion.

7036. But take lead without the earth matter, and the zinc paint with it, which would be preferable for the outside work?—In my estimation, white-lead, for lasting purposes.

7037. Would the other be a fair substitute?—I cannot say it would be a substitute, because I do not know that there is any substitute.

7038. It would colour, would it not?—It would certainly do for it.

7039. And while it lasted would it look as well as the lead?—Yes, for a time.

7040. How long, in your opinion, does lead take to show signs of deterioration for outside work?—The same number of coats as zinc; about five years.

7041. What number of coats have you in mind?—If it took five coats of zinc, you would get the same result with five coats of white-lead, given the same time between, and it would last considerably longer.

7042. Say you put five coats on the outside work with that earth material, and five coats of lead paint, what would be the life of the lead paint?—First of all, I would like to ask what is the time intervening between each coat?

7043. Say you paint a house, giving your own time between coats, some just time to draw and others a little longer; say you paint a house outside with lead, five coats, and you paint a house with five coats of zinc paint with this earth material in it—in both cases using your own discretion between coats. How long, in such a case, would the lead paint last before it required replacing?—The lead paint would outlast the zinc by two years.

7044. What would be the life of the lead paint, before it required to be renewed or replaced?—If it had been carried on in such a way as to give a man his own time between coats, it would last at least six years.

7045. And the zinc would last four years?—Yes.

7046. From the standpoint of cost, would there be much difference in the cost of painting a house with lead paint or with zinc paint adulterated, as you suggest, with the earth substance?—The lead paint would be the cheaper.

7047. Have you ever gone into the question of costs?—Yes.

7048. And you say the lead would be cheaper for the actual colouring of a house?—Yes.

7049. Have you ever used zinc paint for outside work?—Not to my knowledge, only in proprietary paints; I mean, a ready-mixed paint which has on the label "Zinc and white-lead mixture."

7050. Do you know what they call non-poisonous paints?—I am given to understand they are leadless paints, but I am not positive whether they are or not.

7051. You have never, to your knowledge, worked with what is called leadless paint?—Yes, I have.

7052. What you, yourself, consider leadless paint?—I do not know whether they are leadless, but the paints I have used state on the outside label that

they are "leadless." We do not take much notice of advertisements and dodgers; I prefer to use white-lead, because of the unpleasant smell of the spirits, turps, petrol or kerosene, whatever the others are composed of.

7053. We may take it you are a "lead" man—you have been using lead all your life?—Yes.

7054. And unless good reason could be shown you are not prepared to give anything else a trial?—Yes, I am always open to give anything a trial.

7055. Have you given the so-called leadless paints a trial?—I just said I have done so.

7056. To any extent?—To a great extent.

7057. On outside work?—Never on outside work; always inside. The leadless paints, as we have them to-day in the proprietary line, are called "flat" paints and are not much good for outside work, because there is no oil in them.

7058. Have you used the Keystona?—Yes, for inside walls and ceilings.

7059. Of your inside work, what proportion would be done with Keystona and similar paints?—Two-thirds.

7060. One-third would be done with paints containing white-lead. Is that so?—Yes.

7061. In some houses, do you do all the inside work with leadless paint?—The ceilings and walls, yes.

7062. And the window sills?—No; they are done with white-lead paints.

7063. Are there any houses where you do the ceilings, walls, and window sills with white paint?—Yes.

7064. But of your whole trade, about two-thirds is done with leadless paints, and one-third with white-lead?—Yes.

7065. For inside work have you found the leadless paints or zinc mixtures quite as good as lead paints?—No.

7066. Why, then, is there so much of it used?—It is quite a new thing, first of all. When I say "new," I suppose so far as I am concerned you could go back seven or eight years, and we have not yet had sufficient experience to know whether or not it is satisfactory.

7067. The popular demand for inside work now is leadless paint; the quantity used is increasing every year?—Yes.

7068. Every day there is a bigger demand for leadless paints, is there not?—Yes.

7069. Anyway, that is your experience?—Yes.

7070. Coming now to outside work, have you seen any painting work which, in your opinion, was done with oxide mixtures—leadless paints, and zinc oxide paints?—We usually come across it where we find the "quirks" all levelled up, and the mouldings filled up. It usually goes with zinc.

7071. WITNESS (*after slight discussion as to returns*): My book shows names, addresses, the amount of money each man earns for the week, the money he earns for any period of the year, on the one page.

7072. MR. CONNINGTON: It shows the annual income of each man?—Yes.

7073. MR. CONNINGTON: If the witness has no objection I would like to see that book.

7074. DEPUTY-PRESIDENT: That will only indicate indirectly the men's absences from work.

7075. WITNESS: It shows, if it is not a holiday, by the amount of money he has received, he has been absent from his work.

7076. They may not be voluntary absences. The kind of absence which is most important in our inquiry is the absence caused by failing health or indisposition?—It will not show whether or not the cause is failing health. Often a man has to do some business and he simply stays away and comes to work again next morning. When men have been with me for four or five

years I never ask them what they have been away for. A man may have a day off through feeling sick himself, or through his wife's sickness, or sickness in the family. You cannot always put it down to sickness if a man is away half a day.

7077. Those are voluntary absences?—Yes.

7078. DEPUTY-PRESIDENT: I am afraid that kind of information will not carry us any distance at all.

7079. Mr. CONNINGTON: Will you give me a list of the permanent men?—Do you want their names?

7080. Yes, the ten men?—I would rather not. I am willing for the Board, the members, and the advocates to see the book with the names and addresses of the men, but I do not want it made public.

7081. DEPUTY-PRESIDENT: What publicity is to be feared? If you are prepared to show it to the Board and to the advocates I am sure the newspapers will not be interested in it. However, I do not see that the book will be of any value to us at all. This reservation in respect to evidence is not the kind of thing that pleases.

7082. Mr. CONNINGTON: Mr. O'Brien is not quite sure they are the permanent number of men—the ten. That is the only reason I am asking.

7083. DEPUTY-PRESIDENT: The Board cannot see if these men have been permanently employed unless it looks back over a whole series of years. Is it worth while troubling about the matter at all?

7084. Mr. CONNINGTON: The point is, if the men are not permanent then Mr. Perritt will not know whether or not they were sick.

7085. DEPUTY-PRESIDENT: You do not suggest the witness is wilfully misleading the Board as to the number of men?

7086. Mr. CONNINGTON: No; it is just for the sake of making assurance doubly sure.

7087. Mr. MANNING: The book will be here, anyway.

(At 4.15 p.m. the Board adjourned until 10 a.m. the following day.)

ELEVENTH SITTING.

Friday, 15 July, 1921.

(The Board met at the University Chambers, Elizabeth-street, Sydney, at 10 a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY.

MR. COOPER.

JAMES PERROTT, further cross-examined by Mr. CONNINGTON:—

7088. I think you told us that you have never met with a case of lead poisoning?—Yes.

7089. You have heard of men being lead-poisoned?—Yes.

7090. And you have often heard the trade referred to as being regarded as unhealthy, have you not?—I cannot say that.

7091. Have you ever read any of the text-books written by authorities on the question?—Yes.

7092. Have you agreed with them?—No, I have not.

7093. You disagree with them?—Yes.

7094. Whose text-books have you read?—I have read Legge and Goadby. That is one that comes to my mind at the moment. I have read other

books also, and the statistics that I heard here yesterday satisfies me in my own mind that all these ailments cannot be put down to white-lead.

7095. The President just remarked that—That a certain number had died from diseases of the kidneys.

7096. From tuberculosis and Bright's disease?—Bright's disease and the disease of the lungs.

7097. Do you think there is anything remarkable in other writers on the subject also referring to the fact that painters appear to be liable to tuberculosis and Bright's disease?—No, I have not read that. If you will just ask me concerning Bright's disease I may be able to answer some questions for you.

7098. I would like you to tell us what you know about it?—My own experience is this:—I, with others, have used a great amount of stippling and flatting and rough stuff all my life. All these things are made up with mineral turps, and the effect it has on you and on your kidneys is such that you can realise the kidneys being affected by the mineral turps, and the lungs being effected by the mineral turps. A few years ago we were not allowed to flat the walls of a room practically without all the doors and windows being shut, and with four men on a wall at once, two with stipplers and two with brushes, you can just imagine the volume of spirits floating about in the air, when you are within 2 feet of the work and you are breathing it all the time. I consider that those spirits have more effect on your system than anything else.

7099. As a matter of fact, the turpentine is not used very largely at the present time; it is generally kerosene, is it not?—I never used it in my life.

7100. Do you know what is generally used in the trade, apart from your particular business?—Turpentine as far as I know.

7101. Not kerosene?—No.

7102. So far as tuberculosis is concerned, have you any suggestion to make?—None whatever.

7103. Do you think that the fact that such a large percentage of painters are affected by that disease has anything to do with the work they are engaged on; is there any connection at all between the employment and the disease?—I do not consider it is so with regard to white-lead, provided a certain amount of ordinary cleanliness is observed.

7104. We will leave the question of cleanliness out of it altogether. The facts appear to be that painters do suffer severely from tuberculosis?—Yes.

7105. And apparently in a greater proportion than the rest of the community?—Yes.

7106. Do you think that the fact that they follow the calling of a painter is responsible for that, apart altogether from the question of cleanliness or taking precautions, and the like of that?—I can only answer as to the statistics you have before you. Personally speaking, I have never come across it here.

7107. Of course, you would not know whether a man had tuberculosis or not, neither would I?—Then I can only go by the statistics you have before you.

7108. I suppose, then, you are not competent to express any opinion one way or the other?—No.

7109. But you have heard of men being leaded, have you not?—I have heard of it.

7110. And you have heard of men dying as the result of lead-poisoning?—Only since I have been here.

7111-12. Never before that?—Not before.

7113. Although you have read this work. By the way, what was the work you read?—Legge and Goadby.

7114. Did not that refer to people dying as the result of lead-poisoning?—I have read that part of it.

7115. Then you did hear of it?—I read of it.

7116. You do not distinguish between reading and hearing of it, do you?—Yes, I do.

7117. Since you were here yesterday have you thought of other places which have been painted on the outside with leadless paints, or paints of a zinc oxide basis?—No.

7118. You know the fire-station along here in Castlereagh-street?—Yes.

7119. Have you seen that building?—Yes.

7120. Did you notice anything remarkable about that?—Nothing whatever.

7121. Would you say, from the casual look you have given it, whether it has been painted with lead or zinc?—I have never looked at it to be able to tell you what it was painted with. As a matter of fact, I could not tell you whether it was light or dark.

7122. You know the "Hotel Sydney"?—Yes.

7123. And you know the gable end of the "Hotel Sydney"?—No.

7124. Have you noticed that?—No.

7125. I suppose, as a matter of fact, you believe in the lead and you are very loth to try substitutes as long as the lead is satisfactory; is not that really your position?—Well, I have sat with conferences who have gone into the matter of lead and substitutes, and they find that there is no substitute for white-lead; there is nothing that will take the place of white-lead for the purposes for which it is used.

7126. You have already agreed with me that so far as inside painting goes there are substitutes quite efficient, with the same durability?—No, not with the same durability.

7127. But there are substitutes?—That take the place of kalsomine.

7128. And not of paint?—No.

7129. Am I to understand, then, that this Keystona paint, which is very largely used, is not a suitable substitute for lead paint?—No.

7130. Am I to understand that your opinion is that even in appearance it does not show so well?—Yes.

7131. It shows as well in appearance?—No, it does not show as well.

7132. In every regard you think it is inferior?—Inferior to white-lead paint.

7133. There has been some evidence given here by the witness who immediately preceded you that 75 per cent. of the inside painting is done with what is known as leadless paints, or if there is lead in the composition it has been of a non-poisonous description—

7134. MR. MANNING: I do not think Mr. Grice said that in his evidence.

7135. MR. CONNINGTON: And I think our own witnesses also gave evidence that it was used to the extent of 90 per cent.

7136. MR. MANNING: Let us deal with Mr. Grice at present. I am sure that the witness did not say anything of the kind.

7137. DEPUTY-PRESIDENT: Let us refer to the notes of the evidence that was given on the subject.

7138. MR. MANNING: I think Mr. Connington is referring to the evidence on page 594:—

"You think about 25 per cent. of wood, and 75 per cent. of surface—there is the ceiling, you know?—I am aware of that. You have a big partition here."

7139. DEPUTY-PRESIDENT: I think the more important matter is on page 589, where Mr. Connington asked these questions:—

6827. "With regard to what is known as leadless paints, is not the use of leadless paints coming into greater vogue than ever before? Is

not the amount of leadless paints consumed every year increasing?—Undoubtedly.

6828. You know that?—Yes.

6829. Both for outside and inside work?—It is not my experience outside.

6830. But you will admit that it is for inside work?—Yes.

6831. Do you know, as a matter of fact, that the bulk of the inside painting is done with leadless paints?—At the present time, yes, for wall surfaces and ceilings."

7140. MR. CONNINGTON: Our own witnesses have practically all said that nearly all the inside work is done with leadless paints.

7141. MR. MANNING: He did not ask this witness to express an opinion on somebody else's evidence.

7142. DEPUTY-PRESIDENT: At the foot of page 593 these questions were asked:—

6877. "What proportion of the inside painting done by you is done with these leadless paints, or non-poisonous paints?—As I said before, the ceilings and walls of houses now are treated with the leadless paints. Very often they are used in preference to kalsomine.

6878. "I suppose the ceilings and walls represent about 95 per cent. of the inside painting?—No, 75 per cent., sometimes less. At times, in rooms, you get considerably more woodwork than in proportion to this room we are in."

7143. MR. MANNING: That is on the walls and ceilings.

7144. DEPUTY-PRESIDENT: No, they represent 75 per cent. of the inside painting. The previous answer is that the ceilings and walls are now treated with leadless paints. So the inference that 75 per cent. would be covered with leadless paints is not unfair on those two answers.

7145. MR. MANNING: So long as it is made clear; but it was not made clear. It was put that 75 per cent. of the woodwork was with leadless paints, and 25 per cent. of it was with lead.

7146. MR. CONNINGTON: I think it is clear enough for most people.

7147. MR. ROUTLEY: Of course, this was only referring to the work done by Mr. Grice himself.

7148. MR. CONNINGTON: That is all.

7149. MR. MANNING: I take it that the walls and ceilings represent 75 per cent., and they are done with leadless paints. They are not a substitute for lead, but they are really put there instead of kalsomine and paper. That is the point about it.

7150. MR. CONNINGTON: That is not the point.

7151. DEPUTY-PRESIDENT: The inferences to be drawn are not in point at the present moment. The question is whether the present witness disagrees with the statement that 75 per cent. of the inside work is done with leadless paints.

7152. MR. CONNINGTON: Do you agree with the suggestion that 75 per cent. of the painting work done inside is done with leadless paints?—No, I do not agree with it.

7153. In your opinion, what proportion of the inside painting is done with leadless paints, not counting wash; I am speaking of paint and not of kalsomines, or a substitute for kalsomines?—I do not know that you will find any of the leadless paints used at all in tenement houses, for a commencement. In public buildings, to my knowledge, the Secretary's Office, the Lands Office, or any other public building which is done by the Government itself, for wearing utility they would not use it.

7154. Do you know whether, as a matter of fact, they do use it?—Well, while I was sitting on the Board two years ago I went to inspect the

secretary's office with the secretary and my other colleague, and at that time they were flattening with white-lead paint. We went down there for the purpose of seeing it.

7155. DEPUTY-PRESIDENT: What board do you refer to?—A wages board.

7156. Which wages board?—The Painters' No. 8.

7157. Who was the secretary to the Painters' Wages Board?—Mr. Adams.

7158. He was the secretary to the union?—Yes, and he was the member on the Board.

7159. You speak about going with the secretary?—And the President of the Board.

7160. Where did you visit?—We visited the Colonial Secretary's Office, which was being painted; the walls in many of the offices and passages at that time were being flattened with white-lead paint. We inspected the ship "Hunter," and we inspected the inside of one of the warships—if my memory serves me right it was the "Adelaide" or the "Brisbane"; and we inspected one or two other places. The public buildings were being painted with white-lead paint.

7161. What do you say, apart from Government offices, as to the volume of leadless paints that are used in connection with private dwellings and business places inside?—I say that if 10 per cent. is used it is as much as there is used on the inside work of other buildings.

7162. Do you know that the inside of the Education Department is done with Keystona?—I do not know what is done with Keystona.

7163. Would you describe that as a leadless paint?—I do not know whether it is or not. I can only go by what is on the outside of the package. I cannot go by what the manufacturer says. If I had it analysed then I would be satisfied that it was.

7164. I see; unless you probe the wound you will not be satisfied?—No.

7165. Mr. MANNING: Might I ask whether Mr. Connington means the whole of the Education Department, or the inside walls and the ceilings?

7166. Mr. CONNINGTON: The walls and the ceilings. It seems to me that those are the only places to do inside.

7167. You do not know what the building at the corner of Bridge and Phillip streets (*i.e.*, the corrugated iron-building) was painted with inside?—Inside, no.

7168. Do you ever use Keystona or similar paints for any of your work?—Yes.

7169. But still you say you do not know whether it is leadless or not?—No.

7170. We may take it that unless you are satisfied yourself as to the actual composition of the thing you will take nothing for granted?—Quite right.

7171-72. Although other master painters and the men in the trade, such as the operatives, say that it is non-poisonous paint, or leadless paint, you still are not prepared to accept their assurance on the point?—I do not suppose their knowledge is any greater than mine.

7173. When we hear people talk of leadless paints, and read the advertisements appearing in your own journal and the articles appearing in your own journal, I suppose you will still say, "Until I myself am satisfied I will not take anybody's word for it"?—Or until I know somebody who is an authority on that and is able to analyse it.

Re-examined by Mr. MANNING:—

7174. With regard to these leadless paints, you say you have never seen an analysis of those leadless paints?—No.

7175. And you do not know whether there is any lead in them or not?—No.

7176. As far as you know there may or may not be a percentage of lead?
—Yes.

7177. That is all you wish to convey to the Board?—Yes.

7178. They are known as leadless paints generally?—Yes.

7179. Is it consistent with the expression “leadless paint” that the paint may contain a certain per centage of lead?—It may do.

7180. And still be called leadless?—Yes, and still be called leadless.

7181. That is your knowledge after your experience in the trade?—Yes.

7182. With regard to this Keystona paint, you were asked whether that bore any comparison to lead paint, and I think you said it was only used in places where kalsomine and paper would otherwise be used?—Yes.

7183. Is there anything in the substance of Keystona paint to resemble lead paint?—No. The finish of the Keystona has much more of a mat appearance than a flat paint would have as far as appearance is concerned.

7184. Have you ever seen Keystona used on woodwork?—I have never seen it used on woodwork.

7185. Quite irrespective of its relative merits as compared with lead paint, do you think it would be a feasible thing to put it on woodwork?—I do not think it would be lasting at all—not as a finish.

7186. You have told us that you were on the Australian Council of some association?—The Australian Council of Master Painters, Decorators, and Signwriters of Australia.

7187. I think you mentioned this morning that you were present at a conference where substitutes for white-lead were considered?—I have been present at every conference since 1913.

7188. At one of those conferences was the question gone into as to whether there were any known substitutes for white-lead which would result in a job being reasonably well done?—At the discussions of the various conferences there are papers which come up from the various States of Australia, and the materials that are on the markets and their names, such as Keystona, Flattone, Matone, and many other tones, and the pamphlets which they issue with them claiming that they are as good as white-lead—they all come up for discussion. The other States test those things for perhaps six, nine, or ten months before this conference takes place, and they bring the samples there. With the demonstrations that are made by those men and the arguments, and the experience of the various master painters concerned, around the conference table, they have come to the conclusion that there is no substitute for white-lead, and that nothing can take its place.

7189. You say that the conference consists of people who have skilled knowledge in the trade?—Yes.

7190. And probably a lifelong experience?—Yes.

7191. And each of those lead substitutes was considered on its merits?—They are elected by the State associations.

7192. At the conferences was the question gone into to any great extent?—Every year at every conference it is brought up. At every conference every article that comes along, and has been used since the last one, is brought up again. That opens up the whole question.

7193. Is the conference acting in an advisory capacity in that regard?—No; it is just a conference on trade matters generally right throughout the Commonwealth.

7194. Do they draw up a report?—Yes.

7195. Is that circulated?—No; it is not circulated, but a full report is in existence.

7196. What is the object of the conference in considering this question of a substitute for lead?—The object is to discuss trade matters generally and

materials that are brought on the market, and the various forms, and their uses and abuses.

7197. Is the object the dissemination of knowledge throughout the members of the Association?—They take that knowledge back to their State Association, and then it is discussed in the State Associations afterwards.

7198. DEPUTY-PRESIDENT: Do those conferences ever discuss the use of substitutes in relation to lead poisoning?—After all the arguments they find there is no substitute to take the place of white-lead.

7199. That is not my question. My question is this: have they ever considered the substitutes in relation to the subject of lead poisoning?—They have never considered it.

7200. Mr. MANNING: Have they ever considered this Keystona as a substitute?—I do not know that they speak actually of Keystona, but they speak of many paints such as Keystona. There are a lot on the market besides Keystona. For the purposes of taking kalsomine or paper it may be all right, but not for wearing properties, especially where there are children.

7201. You were asked some questions by Mr. Connington about tuberculosis and Bright's disease in the trade. All you say about that is that as far as you know you have never detected it?—No.

7202. You do not claim to have any scientific training of any kind?—No.

7203. Or any medical knowledge beyond that of the ordinary man?—No.

7204. All you can say is that so far as you know you have never come across it?—That is so.

7205. You were asked about certain references in Legge and Goadby about tuberculosis?—Yes.

7206. What you say in respect of that is that you have never experienced it?—That is so.

7207. You have never gone outside to make any research?—No.

7208. You are simply speaking from your own experience in the trade?—Yes.

7209. Mr. MANNING: Yesterday the witness was asked to produce some books in reference to some people who have been in his employ. Those books are here now, but they are here for a limited purpose. I do not know whether Mr. Connington really desires to pursue that matter any further. If they are called for they are here, and if they are called for I will deal with the position.

7210. Mr. CONNINGTON: We do not wish to see the books.

7211. Mr. MANNING: With regard to these inside walls and ceilings, do you or do you not accept the suggestion that those various paints, such as Keystona, &c., are useful for the purposes of inside walls and ceilings?—Yes.

7212. Do you dispute it?—No, I do not dispute it. They are useful. The thing that brought those about more than anything was the war. During the war we were not able to obtain kalsomines of renowned makes, and Keystona therefore was pushed to a great extent, especially in the architects' offices. I do not mean Keystona especially, but the flat-oil finish paints. They were used in place of kalsomines, because we could not obtain kalsomines of renowned makes; we could obtain some of the local articles, but they were not much use. Of course we use these things in most cases because the architect specifies them—Keystona, or Matone, or Flatone. If he specifies it we have to use it whether we like it or whether we do not.

7213. Do you accept the suggestion that they have come more generally into use for those limited purposes during the past few years? (No answer)

(Witness retired.)

7214. Mr. MANNING: Mr. Grice was asked by you, sir, to produce some books of his with the object of affording some information on absenteeism. Mr. Grice is here now, and will produce his books for whatever use you desire to put them to.

EDWIN THOMAS PADGET GRICE, recalled, examined as under:—

7215. DEPUTY-PRESIDENT: You were to give us some information with regard to the absence of your employees from work?—Yes. I quoted the cases of five men yesterday, and I promised to give you details. I have gone through my books and I now produce a copy of the books. The first man, working the full year, was absent one day. I challenged him on the matter to-day while he was in the office, and he said, “I did not know I was away a day sick.” I first had him down as away for three days; I challenged him about those two days I had him down for, and he said, “That was when you were a little bit quiet and I asked you to let me go away to work for my brother at Narrandera.” I therefore put him down as one day. The second man was away one day, and in addition to that he did 191½ hours overtime during the year. The third man was not away at all; he worked right throughout the year.

7216. You say the third man was not absent?—No, he was not away for one hour even. He did 32 hours overtime. The fourth man was not away during the year, and he had 16½ hours overtime. The fifth man was away 6½ days; that man is a returned soldier and he has been gassed, and he frequently goes to his doctor—not so much this year, but the previous year—he is recovering. In the previous year he would be away sometimes for a week at a time. The gas had affected his bronchial tubes, and he suffers from asthma, but he is gradually getting better. He has been building his new home also. From all causes he was absent 6½ days, but he also had 177½ hours overtime.

7217. Are those five men five of the six constant men in your employ?—Those are the five men who earned the highest amount of money.

7218. Are they five of the six constant men in your employ?—Yes.

7219. So that there is only one man of the six constant men with respect to whom you have no particulars on that sheet?—That is all.

7220. Can you tell us in relation to those five men how long each of them has been in your employment, starting with the first?—The first man has been about 15 years; the second man has been in the business longer than I have myself—I think he has been there about 35 years; the third man has been in about 30 years; the fourth man has been in about 2 years; the fifth man has been in since he came back from the war—about 3 years. In addition to that I have a list here showing each week the number of men employed and the number of men who have worked the full number of hours, and the number of men who have worked parts of days.

7221. What is the effect of that?—The first week there were eight full men; three men 4 days, and one man 3 days. Included in that number of men for each week you have three men who had 16 weeks, three of 10 weeks, and two of 9 weeks, who worked a total of 60 hours a week while they were on the mountains—they were at the Red Cross Sanatorium Home—the list starts from the 1st July.

7222. And it runs the whole year of 52 weeks?—Yes, and it shows it quarterly.

Cross-examined by Mr. CONNINGTON:—

7223. With regard to the five men, apart from the time set out here as having been lost by them, were they constantly employed all the time?—Yes.

7224. They lost no time at all?—No, except as I have shown there. In addition to that they had a considerable amount of overtime, as I have shown on that list.

7225. And the others are casual hands; they would be on for short or long periods, as shown here?—They had not worked the full year. Some

men have worked ten months, some nine months, some six months, and some less.

7226. The first week there were eight men full time, three men worked four days, and one man worked three days?—Yes.

7227. The second week eleven men worked full time, and one worked three days?—That is right. That would be twelve men showing on the pay sheets.

7228. Where it says "Six men full week, one man three days," does that seven include those five men?—Which five men?

7229. The five constant men?—Yes.

7230. Then all these figures include the five constant men?—Yes.

7231. Each week the five constant men are included in the computation?—Yes, each week they are stated there. It shows you the total number of men employed during each particular week.

7232. And the five are included in every computation?—Yes.

Re-examined by Mr. MANNING :—

7233. Have you any records showing from what causes they were absent?—Do you mean the casual men?

7234. The casual or constant hands?—The only record is the number of hours they work each week.

7235. But you do not know for what causes they are absent?—No, a man might run for three months or four months; he might start in the middle of the week or at the end of the week.

7236. You are speaking now of the casual hands?—Yes.

7237. Take the constant hands?—I have taken those five men.

7238. You dealt with the five constant hands, and you show in respect of them that one of them was absent for $6\frac{1}{2}$ days?—Yes.

7239. Do you know for what reason he was absent?—For some reason he went to his doctor. That is the man who is a returned soldier.

7240. Can you tell in respect of the others for what causes they were absent when they were at work?—There is only one there who is mentioned; there are two men there of one day each. One man was away one day sick with a cold, and the other was a query. I queried it with him this morning, and he doubted whether he was away for a day; I said, "Well, I have not got any record of it, and I shall put you down as a day absent." I might also state that the first man who appears on that list is a teacher at the Technical College. He also puts in four evenings per week at the Technical College in addition to his daily work.

7241. DEPUTY-PRESIDENT: He is a particularly robust man I suppose?—No, he is not a robust man. It shows that he is a considerably longer time in the trade than another man would be.

7242. Would you regard the lectures at the Technical College as associating him with the materials used in the trade?—He is the teacher of painting there.

7243. How is painting taught? Does he take the brush and use it in order to demonstrate its use?—Yes. He has a class of writers, grainers, and house-painters. He shows his pupils how to make up their paints. Of course, he does not use quantities like he would on the jobs.

7244. He does not stand over them like a foreman would, I suppose?—No.

7245. He actually demonstrates the use of the brush?—Yes.

7246. Mr. CONNINGTON: He is a signwriter, is he not?—He is a signwriter, a painter, and general decorator. He is not on signwriting all the time; he does the whole of the branches of the trade right through.

7247. DEPUTY-PRESIDENT: I doubt whether the document is of any value as an exhibit? What do you gentlemen think?

7248. Mr. MANNING : Personally, I do not see the value of any document unless it contains such information as can be taken into account as being of statistical value. The only value of these things is to rebut any suggestion that the trade is a trade which constantly results in sickness.

7249. DEPUTY-PRESIDENT : We have in the notes the information which appears on this list, which shows that men are off and on ; that is, with the exception of five or six constant hands, they are at work intermittently. We can draw no inferences from absences or presences. I do not think we will put the document in.

7250. Mr. MANNING : I do not think there is any necessity for it.

7251. DEPUTY-PRESIDENT : Statistics with regard to the State of New South Wales seem to show that out of every 1,000 deaths of painters 16 are caused by lead poisoning ; that of every 1,000 deaths in other occupations only 4 are caused by the same lead-poisoning. They seem to show further that of every 1,000 deaths of painters 152 are caused by Bright's disease, whereas of every 1,000 deaths of individuals in all occupations 55·2 only are caused by Bright's disease. Further, they seem to show that of every 1,000 deaths of painters 128 are caused by tuberculosis in all its forms, whereas of every 1,000 deaths of men in all occupations 90·4 only are caused by tuberculosis. Does your experience tend to confirm the lessons to be derived from the statistics in those connections ?—No, sir. I have had no cases come under my notice of men suffering from those diseases, with the exception of the one case that I mentioned.

7252. If the condition of things that seems to be pointed to by the statistics is the existing condition of things, would you not regard that condition of things as deplorable ?—Well, it seems a big percentage. The only thing is, we cannot combat that evidence, because the thing is proved by statistics.

7253. I am not putting it in that way ; I am putting it to you in a perfectly supposititious way. The matter will, perhaps, be dealt with otherwise by Mr. Manning. If the facts be as the statistics seem to indicate, would not you regard the condition of things resulting from those facts as being a bad condition of things ?—It seems to be on those statistics.

(Witness retired.)

WILLIAM FORBES, sworn and examined as under :—

7254. Mr. MANNING : What is your occupation ?—I am a retired railway officer.

7255. You had been for some years employed in the Eveleigh workshops ?—Yes.

7256. In what capacity ?—As painter, assistant foreman, and foreman.

7257. Over what period did that employment extend ?—Thirty-three years total.

7258. During what period of that thirty-three years were you occupied in the trade of a painter ?—For the last eleven years as foreman, for about fourteen years as assistant foreman and mixer, and previous to that as a journeyman coach-painter.

7259. After you retired Mr. Stainton succeeded you ?—Yes.

7260. Had you been struck by any undue dangers attached to the carrying on of that trade, arising from white-lead ?—No, not particularly.

7261. I suppose you realise that white-lead is a poison ?—Certainly.

7262. During your experience there did you notice any dissatisfaction amongst the men at having to work with white-lead ?—No, the calling is to work with paints and white-lead. There is no dissatisfaction.

7263. Was there ever any dissatisfaction expressed in any way?—No, not with regard to those materials.

7264. There was no dissatisfaction expressed at having to work with white-lead?—No.

7265. With regard to illnesses during that period, did you ever come across people who were suffering from lead-poisoning?—No, not to my knowledge.

7266. Or people who had been affected by lead in any way, so far as you know?—Not to my knowledge.

7267. Those are matters which are not within your knowledge?—No.

7268. With regard to absentees during that period, can you say generally whether you noticed any greater degree of absenteeism amongst the painters than amongst other people with whom you have been associated?—Well, there might be and there might not. During the war I could attribute it to another cause—not to lead or lead-painting.

7269. First of all, did you notice any excess of absenteeism?—No, I did not.

7270. You say it may or may not have been so, but it was not a matter of such importance as to come under your notice?—Quite so. Those statistics could be got from the Department. I could not give them to you.

7271. You have not been a house-painter, have you?—No.

7272. What sort of painting were you engaged in?—Coach-painting and carriage-painting, which are nearly identical, with the exception that in carriage-painting there is more of an excess of water-painting than there is with private coach works.

7273. Is it known as the carriage and waggon sheds?—Yes; that is where I was employed.

7274. How many painters were there employed during that period?—I have in my note-book a record of March, 1917; I did not take a review of the men after that. I had 141 painters, 54 painters' assistants, 1 foreman's assistant, 1 clerk, 1 paint mixer, 2 polishers, lavatory attendants, 5 apprentices, totalling 208. Of course, I had a number away at the war.

7275. I want to take you through certain parts of the work that was done by those men. You used to rub down during your period? How was that rubbing down done?—With pumice stone or a pumice brick and water, using a sponge and a drying cloth.

7276. Was all rubbing down done with pumice stone and water in your experience?—Yes, with the exception of sandpapering.

7277. I want to keep to the rubbing down only. All your rubbing down was done with that?—Yes, I would not allow anything else.

7278. When is sandpapering done?—That is used before the actual colour is placed on, and the little nibs taken off, and a general coating down.

7279. Does that, in your opinion, cause any dust to be sufficiently harmful?—No; a good deal of it clogs in the paper. Of course, sandpapering is another operation.

7280. I am speaking of rubbing the nibs off with the sandpaper?—Yes.

7281. Is there any danger of dust arising from that?—Very little, it all falls to the ground.

7282. What other sandpapering is engaged in?—When the burning-off has been finished, then sandpapering must be done. If a man is a good tradesman and can burn off cleanly, very little sandpapering is required, and even that is only a charred mass.

7283. Supposing the burning-off has not been clean, and that there were a fair amount of sandpapering to be done, is the dust caused by it from the burnt-off surface anything serious?—Well, it makes a man dirty. The men are always pleased to be done with it, because it is a dusty operation.

7284. And I suppose the dust might very easily get into the respiratory canals?—Quite so.

7285. With regard to the putting on of the paint itself, in your opinion is there any danger from that of lead getting into the system?—No.

7286. We have heard something said about the spray caused by the overhead painting?—No.

7287. You do not accept that as a risk?—No; a clean man will not get that.

7288. During your period can you say generally in respect to your 200 odd painters whether they observe the ordinary rules of cleanliness amongst the painters?—Some do and some do not.

7289. Do you attach importance to cleanliness?—I do, indeed.

7290. With respect to getting the paint off the hands and the clothes?—Quite so.

7291. What was your experience with regard to the habits of your men?—My experience is that some are careless and some are very clean. In fact, the more careless of those men I have spoken to times without number, but they seem to go on in their general way just keeping things as they were. Some are very clean.

7292. On which side are the majority—clean or unclean?—I should think they were clean.

7293. And a fair percentage unclean?—Yes, a fair percentage unclean; that is to say, they were not clean with their hands with regard to washing them, and wearing dirty clothes, and so on.

7294. Were you present here when Mr. Flanagan was giving his evidence?—I think I was here most of the time.

7295. Do you recollect a statement made by Mr. Flanagan in connection with the non-leading of joints?—Yes.

7296. That lead was not used in the joints?—Yes.

7297. What do you say as to that?—Lead-paint is used in jointing always. In fact, years ago in an outside firm a man was punished by a day's pay, and there was a notice written up to that effect, if he did not paint there.

7298. Do you regard it as a necessary part of the work of jointing?—Certainly.

7299. And is it so regarded in the trade generally?—Yes, or the joints would rot by the water getting into the joints when they commenced to get loose.

7300. With regard to the painting of the roofs, we heard some evidence about that from Mr. Flanagan. What kind of paint is used for the roof?—Do you mean at present or years ago?

7301. When you were in the trade?—Lead.

7302. Is it thickly-coated lead?—Very thickly coated, and canvas spread on the top of it.

7303. DEPUTY-PRESIDENT: Was it put on in the form of a paste?—Yes, put on in the form of a thin paste, and canvas then spread on the top of it.

7304. With a knife or with a brush?—With a brush. I can describe the operation if you wish.

7305. Mr. MANNING: Perhaps you had better describe it?—The white-lead was placed on the roof, spread to a thickness of about a quarter of an inch to half an inch; the canvas was then stretched on the roof and tightly packed round the edges; the moulding was then tacked round. During that time the lead was pressed through with a board.

7306. DEPUTY-PRESIDENT: Kneaded through?—Yes, so that the lead would eat its way through the canvas. Then it remained for a few days until a coat of white-lead paint was placed on top. Therefore the canvas was sandwiched in between two leads.

7307. How long did that practice continue?—For a long, long time.

7308. When was it departed from?—I believe it has been discarded now, owing to a dressing that is put on.

7309. Since your resignation took place?—Just before, and now it is being brought into practice, I believe.

7310. MR. MANNING: With regard to the paint used on the ceilings, is that a heavily-coated paint?—No.

7311. Is it paint of a lead composition?—Yes, white-lead.

7312. You heard Mr. Flanagan's evidence about that spraying material?—Yes.

7313. And the danger attendant on and the sickness that was caused through that spraying?—Yes.

7314. Will you tell me what is the analysis of that spraying material that is used. I mean, does it contain any carbonate of lead at all?—No carbonate of lead whatever.

7315. Does it contain sulphate of lead?—Yes, and other ingredients like carbonate of lime, &c.

7316. Have you got a copy of the formula with you?—Yes, I have a copy of it, but I do not know whether I should mention it.

7317. You do not want to use it unless you are compelled to?—That is so.

7318. But it is there, and you know it contains no carbonate of lead?—None whatever.

7319. DEPUTY-PRESIDENT: Does it contain turpentine?—No.

7320. MR. MANNING: Perhaps you might look at it, Mr. Deputy-President.

7321. DEPUTY-PRESIDENT: These figures represent percentages I take it?—Yes.

7322. MR. CONNINGTON: Can I look at it?

7323. MR. MANNING: No, I do not think so.

7324. DEPUTY-PRESIDENT: You will not be prejudiced by it in any way, Mr. Connington.

7325. MR. MANNING: If the Board disregards the evidence of Mr. Flanagan altogether, then it is of no use. If the Board attach any importance to anything Mr. Flanagan has said, and in particular to what he said about that thing; supposing, for instance, that the Board were to accept his statement that illness was caused through the use of that spray, then that document would be important, because it would bear out the medical testimony that illness is often caused through other ingredients than lead in the paint.

7326. DEPUTY-PRESIDENT: If you want to establish a case that illness is caused by any of the ingredients of that composition, I am afraid that the contents of that document will have to be disclosed.

7327. MR. MANNING: I am quite prepared to do that, but I do not want it disclosed in that form at present. I will call an expert witness who has dealt with it. Of course, if no importance is attached to Mr. Flanagan's statement about the illnesses caused by that spray then it is useless. These things only have a relative importance.

7328. DEPUTY-PRESIDENT: There appears to be no difficulty, so far as my mind is concerned. Mr. Flanagan was here to give us evidence with regard to the effect on health of lead in the form of white-lead particularly. It has been given in evidence by this witness that that mixture to which he made reference contains no carbonate of lead. Therefore the inference may be drawn that, whatever causes the illness amongst the men who handled that lead, it is not white-lead.

7329. MR. MANNING: That is all I want, and I will leave it at that. It is the only purpose for which I use it. I want it to be regarded as beyond question that there is any carbonate of lead in that.

7330. DEPUTY-PRESIDENT: I think the position is quite clear.

7331. MR. MANNING: That being so, I will accept Mr. Flanagan's evidence on that point.

7332. We have some figures here relating to tuberculosis and Bright's disease among painters. I think the men sometimes work in water, as it is called?—Yes, one third of the time at least.

7333. A third of the time they work in water?—Yes.

7334. What is meant by working in water?—Washing, cleaning the outer and inner part of the railway carriages, and rubbing down; in fact that is nearly the lot, but that means a great deal. It means about one-third of the time, and I am giving them the benefit there.

7335. When they are engaged in the work of working in water, do they get wet themselves?—Yes, when they are rubbing down, for instance, a man will sometimes get very wet, but of course he takes precautions by wearing strong boots, and sometimes protectors on the top of the boots, and he stands on the top of planks; anything at all to protect him. When he is using the sponge with water and the stone, the water will, of course, trickle down on the ground sometimes in great volume. To keep his legs dry, those are the precautions he takes.

7336. Is it the rule, or the exception, that precautions are taken?—It is the rule.

7337. Are the exceptions of any frequency?—No, they try to avoid it as much as possible.

7338. Would you say there was more danger attached to working in water than working not in water—I mean in regard to health generally?—Yes, a man would be more apt to catch cold, but with regard to the general health, I do not know that there would be much difference.

7339. I mean, the tendency to catch cold is a circumstance of the general health, is it not?—Yes.

7340. Supposing you were prohibited from using white-lead in paints, what effect do you think it would have upon the work that is being done?—It would have a very disastrous effect.

7341. In what respect would it be disastrous?—On the outside of the vehicle more especially, not so much on the inner part.

7342. Do you refer to the weather resisting properties of paints with a lead base?—Yes.

7343. Do you know of anything that can be regarded as a substitute for outside purposes, for a paint with a lead base?—I do not. I am speaking principally from the foundation of paintwork, you know.

7344. Have you, during your career as a painter, made observations for the purpose of making up your mind and informing yourself generally on the subject?—Yes. We have tried a good many things, especially American patents, but they were of no use. They all crack.

7345. It has been suggested here that zinc paints might be regarded as an efficient substitute for lead paint;—Oh, no.

7346. What do you say as to that?—No, not for that purpose.

7347. DEPUTY-PRESIDENT: Have you come to the conclusion, as the result of your observation of men who work in the painting trade, that they are men who are usually in delicate health?—No, not to say in "delicate" health. They are not strong men; the majority are not strong, robust men, but as to being in delicate health, no.

7348. You think, then, that the average painter is not robust as the average man in another occupation?—Yes.

7349. DEPUTY-PRESIDENT: I do not want to mislead the witness in any way, Mr. Manning. I did not ask the question at the end of your examination for the purpose of adding difficulties to your case, and if you

would like to question him further upon that point, you may do so before Mr. Connington commences his cross-examination. But the replies of the witness suggested to me that I should ask that question—that is, by the answers he gave in regard to wet work. He said the men were prone to catch colds because of the exposure to wet weather; and men who are prone to catch colds because of exposure to wet clothes and wet feet I suppose would be men of less than normal health. There are many men who live in wet clothes in other occupations and are rather proof against colds.

7350. MR. MANNING: The witness said that working in water would cause colds, but he rather guarded himself against that by saying they were men of less robust health.

7351. DEPUTY-PRESIDENT: I think that I had to ask him that question, and now he has committed himself to the effect that they are less robust than men of other trades.

7352. WITNESS: May I qualify that?—I said it for this reason, that heavy strong men seldom go to the painting trade, because it is not a laborious trade. There is no great lifting to be done; it is simply wielding the brush or cleaning down, and that is why I consider so many go to the trade who are not men of bulk.

7353. DEPUTY-PRESIDENT: Inasmuch as there is apprenticeship to the trade, which has to be served before a man reaches his majority, that selection must be made for health reasons at a very early age?—Oh, no. Parents very often send a boy to the trade because he is not a heavy boy.

7354. Exactly. The selection is made by or for the boy at an early age?—Quite so.

Cross-examined by Mr. CONNINGTON:—

7355. With regard to the question of leadless paint *versus* paint containing white-lead, have you ever made an experiment?—They never came within my category, with the exception of enamel.

7356. You know enamel?—Oh, yes.

7357. And you have painted with enamel and with lead paints?—Yes.

7358-59. I am speaking now of what are known as “leadless” paints, or paints containing lead of a non-poisonous description. Have you ever made any experiments to see which would be the most efficient from the standpoint of durability, or in any other way? Have you made any tests?—Oh, yes.

7360. What has been the result of your tests?—I have tried them on vehicles.

7361. On horse-drawn vehicles or motor-cars?—No, on railway carriages. The portions which were done with lead stood the test for durability.

7362. And the balance, or the portions which were done with the leadless paints?—They did not.

7363. Did it have a good appearance?—You see, my tests were not confined to the paint alone. They had other colours on top of them, generally, and then varnish, so that there would be a corresponding patch of each.

7364. You know the roofs have been done with composition during the last few years. You said they commenced to use it before you left. Is that composition satisfactory?—I trust it will be.

7365. Do you think it is as satisfactory as lead?—Well, it is on trial now.

7366. Have you any opinion to express?—Yes, a strong opinion.

7367. What is it?—That it will be satisfactory.

7368. You think it will pan out all right?—Yes, I think so.

7369. MR. CONNINGTON: I suppose I might ask the witness some questions dealing with the report of the departmental committee appointed to investigate the danger attendant on the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages? I propose

to bring under the notice of the witness some of the largest railway concerns in England—that they have given up the use of lead compounds for a number of years.

7370. DEPUTY-PRESIDENT: You might ask him the question, but there is no need to refer him to the report. Is that the record which we have regarded as being before us?

7371. Mr. CONNINGTON: I cannot get the one relative to the inquiry of the same committee into the danger of using lead in house-painting. This is the report referring to railway carriages and coaches.

7372. DEPUTY-PRESIDENT: Both reports are by the same committee?

7373. Mr. CONNINGTON: Yes, that is so. This one is dated 1920.

7374. You have heard of the Midland Railway Company?—Yes.

7375. Are you aware that according to this report that company has not used any white-lead for either carriage or waggon painting for the last six or seven years?—I never heard of it before.

7376. For the purpose of jointing, is it in your opinion necessary white-lead should be used?—Yes, it would be best to use white-lead. I do not know of any other substitute which would do as well.

7377. The report says, at page 3, "Canvas on the roofs of vehicles bedded down with leadless jointing paste containing zinc and barites." Then it says that the tops are then painted with zinc and are quite satisfactory. That is the statement of Mr. T. Jordan, of the Midland Railway Company?—I do not know anything about that.

7378. I think you told us that these leadless paints would not be useful, in your opinion, for outside work?—No, not for the outside of carriages.

7379. Then, on page 4 of the report, Mr. J. Steinetz said:—

"White-lead jointing material was used up to the end of 1904, but in consequence of a number of cases of lead-poisoning it was decided to abandon the use of white-lead for this purpose, and for over five years, during which 4,000 cars and railway carriages were built and delivered, no single complaint was received from customers in connection with jointing or roofing material."

Mr. Steinetz was the manager of the Falcon Works of the Brush Electrical Engineering Company, Ltd., Loughborough, where tram cars and rolling-stock generally are manufactured. He is using other than white-lead now for that work;—are you aware of that?—No.

7380. Do you know the Daimler Motor-car Company? Are you aware they are using these leadless paints for carriages and motor-cars?—I would not say they would use altogether that. They might use some. I will explain that very simply. Iron is used so much in these cars that they do very much enamelling work and not so much painting.

7381. Would you agree it would be satisfactory?—On iron it might be satisfactory. The majority of iron cars are enamelled.

7382. Mr. Spencer, of the Bradford Corporation Tramways, said—

7383. DEPUTY-PRESIDENT: I do not think you should read extracts from the report to the witness. The witness is unacquainted with it.

7384. Mr. CONNINGTON: Very well; I will refer to the report in my address.

7385. However, in your opinion, for outside work the leadless paint is unsatisfactory?—Yes.

7386. The composition on the top of the roofs of the cars, would you describe that as a paint?—What they are using now? No, as a dressing.

7387. It has oil in it, has it not?—Yes.

7388. And a zinc base?—There is no zinc in it at all.

7389. Do you know it?—Yes, I myself introduced it. Of course, I gave the formula to the Railway Commissioner.

7390. DEPUTY-PRESIDENT: We do not want you to disclose any formula. We will be content with your statement that it contains no lead.

7391. Mr. CONNINGTON: Is it going to be satisfactory?—It is on trial now, and it is my opinion that it will be satisfactory from a point of view of painting. Mind you, it is only for canvas roofs.

7392. You call that outside work?—Yes. It is not used elsewhere, excepting on canvas.

7393. Will it stand the effects of the weather all right?—I believe it will.

7393A. Take white-lead paint; after it has been exposed to the air for a couple of years, or for any period, the oil dries out of it?—Yes.

7394. What remains is the dry lead, the powder?—Yes.

7395. Do you think it is dangerous for adults or children to get that on their hands?—It would not be safe.

7396. What would be the danger?—Immediately you see the white on your hands, you brush it off. An adult would certainly do so, but a child might put it to his mouth. That is all I can say on that matter.

7397. What remains it would be dangerous?—Yes, there would be a minimum danger—a spice of danger about it.

7398. Would you think it possible to be so dangerous as to be worth while for some of the admittedly eminent doctors to appeal to Parliament and ask for the prohibition of its use on railings and verandahs?—A restriction might be necessary.

7399. Then it would be a serious thing, would it not?—It might be as well that a restriction should be placed on the use of carbonate of lead alone upon railings.

7400. It ought to be prohibited, you mean, do you not?—Oh, no; restrictions should be placed so that there might be a mixture, or the last coat might be zinc or something of that description—a mixture of zinc.

7401. In effect, what you are saying is this: that the possibility of people coming into contact with lead, children particularly, ought to be prohibited?—On fences.

7402. Is that the effect of what you are saying?—Yes, on fences.

7403. But is that what you are saying?—Yes.

7404. Ought it not to be prohibited?—I would not say prohibited, but it should be regulated.

7405. How would you regulate it so as to entirely remove the danger? You paint a railing;—how are you going to regulate the painting?—The last coat should be mixed with zinc. That is how I would do it.

7405A. Suppose it is a case where there are only two coats, or perhaps one coat put on;—that often happens with railings, does it not? Is it not generally the case?—I am not so conversant with the painting of railings as the secretary.

7406. Will you agree that railings should not be painted with lead?—It powders so quickly, and being so easily within the reach of the community that is innocent, I should say there is a good deal of danger attached to it.

7407. Would you not say its use on such a place should be prohibited?—I would not say “prohibit” but it should be restricted, anyway.

7408. How could you restrict it?—By using a mixture of carbonate or sulphate of lead and zinc—anything at all which will be innocuous.

7409. Mr. MANNING: The question here is as to whether the use of white-lead as used in painting is so injurious to painters or other workmen engaged in the industry that its use should be prohibited or restricted. Of course, if we are going into the danger to the community other than painters, attendant on the use of white-lead, the inquiry has a much wider field. There would be very different figures shown.

7410. MR. CONNINGTON: The question says, "Dangers arising from its manufacture and use." To me the last words seem very wide. I am reading the questionnaire.

7411. MR. MANNING: That is not the questionnaire.

7412. DEPUTY-PRESIDENT: Children do not use paint, Mr. Connington.

7413. MR. CONNINGTON: But the words are "dangers arising from its manufacture and use." You see the point—it is the result of using it which is a danger to the community.

7414. DEPUTY-PRESIDENT: I should say, primarily, the person who used the paint are those who apply it. I am not a user of paint, although I have it in my house. I am not a user in the primary sense, at any rate.

7415. MR. CONNINGTON: Suppose there is paint on this wall, someone has manufactured that paint. The fact that it has been used by the painter results that it is injurious to him in the way of health, or to the health of someone else. I suggest to the Board that would be a danger arising from its use.

7416. DEPUTY-PRESIDENT: In a sense we all use paint, inasmuch as we live in painted houses, but I think the words there are used particularly with reference to the use of paint. Look at the full point of the question [reading].

7417. MR. CONNINGTON: I think I could read it that way, too. From my point of view I was using it more to illustrate the fact that this dry lead is injurious, whether it attaches itself to a painter or to a child, or anyone else.

7418. DEPUTY-PRESIDENT: You do not need to labour that point, do you? If it is dangerous to a child, it is very regrettable it should be within the reach of a child. If it is dangerous to an adult painter, it is bound to be dangerous to a child.

7419. MR. CONNINGTON: That was not the object I had in asking the witness these questions.

7420. DEPUTY-PRESIDENT: What was your motive?

7421. MR. CONNINGTON: To be frank, if it is dangerous, something should be done, and I was rather chary that the witness suggested nothing should be done.

7422. DEPUTY-PRESIDENT: He does not. He says some restrictions should be placed on its use in places accessible to children. That restriction may be a law for other people not to allow their houses to remain unpainted for more than two and a half years, because it is the effect of oxidation that produces the powder that is rubbed off by children on to their fingers.

7423. MR. CONNINGTON: From the community point of view I think it is more practicable to prevent the use of it. I take it that is a practicable question.

7424. With regard to the paint getting on to a person's hands or other parts of his body, do you think it is at all injurious?—No, not from my standpoint. I have been nearly fifty years at the trade and have been getting it on my hands and have not felt the slightest degree of illness from it.

7425. Your opinion is that smearing paint on a person's body has no ill effects?—On his hands.

7426. It has no ill effect upon his health?—No, not in my opinion.

7427. If a person allowed the paint to remain on his hands, would any ill effects arise from that?—He should not allow it to remain there.

7428. You say there are no ill effects from that. If the paint were left there and he did not remove it, do you think it would be injurious?—I have not observed, even if there was paint on my hands, a small amount, anything wrong afterwards.

7429. And you do not think paint on the clothes or the person is harmful?—Unless it powders and you get it down your throat. In a room that is where the danger arises, taking it in through your mouth.

7430. No danger arises from getting it on the clothes or on the body?—Not in my opinion; I do not see it.

7431. But you say there is danger when you inhale the dust?—Yes, if you do inhale it; but you should keep it out.

7432. I think you said you had not ever met a case of a man suffering from lead-poisoning. Have you ever heard of a case? I have heard of so many things that I cannot say anything of my own positive knowledge.

7433. Is it generally recognised in the trade a man is liable to be lead-poisoned?—No.

7434. Do not the men in the trade consider that unless they are very careful about washing their hands?—Oh, yes, if they are not careful in the way of cleanliness there is a liability.

7435. Do you know of any cases of lead-poisoning while you were in the Railway Service in your department?—Deaths, or sickness?

7436. Of sickness?—From memory I should say there might be a certificate come in from a local doctor perhaps once a year, and that would be out of 208 or 240 men, and the proportion is very small.

7437. But you have known of cases?—And a doctor's certificate was given.

7438. You have no reason to doubt that the doctor knew his business, have you?—Well, I knew the cases of those men pretty well, and very often I had grave doubt; at the same time I could not say "no" to a matter because it went on, and the man perhaps was off a few days. There were no extended cases.

7439. But you recollect these cases coming along and though you had your own doubt about them being cases of lead-poisoning, still it was so certified?—Yes, it was so certified.

7440. Have you not had cases of men complaining of attacks of colic and giddiness?—Yes, but not lead colic, only stomach complaints.

7441. They have had stomach complaints?—Yes, to which all people are liable. It depends upon what they have been eating.

7442. Will you not say the percentage of men complaining of stomach trouble amongst painters was greater than amongst other callings?—No, I do not think it was.

7443. What do you know of complaints amongst men in other callings? Do you know anything about it?—Yes, because I am often in conversation with the ambulance attendants in the carriage and coach shops, and so on, and I have asked them if there were a greater number of men who came to be treated in other callings than in the paint shops.

7444. I am dealing with sickness?—A man would go to the ambulance people and say "I have got a stomach complaint," or "I do not feel well. Can you give me something?" That was done and these complaints were looked into.

7445. Have you any knowledge at all of what happens in regard to other callings, such as boiler-making?—Oh, no.

7446. Then you were never in a position to compare the number of complaints amongst painters with the number of complaints in other callings?—Oh, no.

(Witness retired.)

WILLIAM MASON sworn, examined by Mr. MANNING:—

7447. What are you?—I am a master painter and have been so about forty odd years.

7448. During those years, what sort of work have you been performing in the painting industry?—All classes of painting.

7449. Houses (inside and out), coaches, carriages, and ships?—No, I will leave ships alone.

7450. What about coaches and carriages?—No, I have done most of the house work, inside and out.

7451. You have been an operative painter for a considerable portion of that time?—Yes.

7452. While you have been engaged in that work, have you suffered from any illnesses yourself?—Never.

7453. You were never troubled with illnesses attributable to paint?—No. The only illness I have had is influenza, in the last fifty years, that I can remember.

7454. During your experience, have you seen any symptoms of illness to an alarming degree in the painters engaged with you?—None whatever.

7455. Was there any dissatisfaction expressed by them as to the use of white-lead?—None whatever.

7456. How many painters do you employ?—At the early part of last year I had thirty-five men engaged.

7457. What is the average?—Just now it might pan out at an average of twelve to fourteen taking it right through.

7458. Amongst those twelve to fourteen, have you noticed any absenteeism to any remarkable degree?—No, I have not noticed it; it has never been seriously considered.

7459. Do you hold a position on any representative body; do you belong to any association?—Yes, to the Master Painters' Association. I was Secretary and President—

7460. Has your body ever considered the use of substitutes for white-lead?—It has been considered at every conference.

7461. And has serious and careful attention been given to it?—I think in 1915 at Brisbane there was a very important discussion on it, but I forget at the moment what brought it about.

7462. That year there was a report issued, was there not?—I cannot remember, but I know the final motion was that there was no satisfactory substitute for white-lead.

7463. Was the matter gone into thoroughly?—Oh, yes, it was discussed for a whole day.

7464. And was given serious consideration?—Yes.

7465. By men who spent their lives in the industry?—They were all men of standing in the industry.

7466. Of your experience, I want you to give the Board the benefit of your views of the relative merits of zinc paint and lead paint both for outside and inside purposes; take outside purposes first?—Of course, in all our discussions it has been thoroughly acknowledged that zinc paint is not satisfactory outside. About ten years ago, there was a customer of mine at Bondi who lived in one house, and his sister-in-law lived in the adjoining house. Both houses were of exactly the same class. He was interested in one of the proprietary paints and he wanted me to use this on his house, and to use white-lead on his sister-in-law's house. We did so. The result was very amusing. In nine months the proprietary paints began to show the effects of wear. The front of the house had very heavy verandah posts, 9 x 9, and nine months afterwards you could see the effect in tiny little fine cracks. In the house painted with white-lead there was not the slightest sign of anything, practically. In twelve months time on the house painted with the proprietary paint there were distinct cracks on the verandah posts particularly. There was no effect at all on the white-lead. In eighteen months

time the effect on the Proprietary paint was most prominent. It was so much so that he suggested that we should paint the posts again.

7467. What with?—Some other paint.

7467A. A proprietary paint?—No, because, it was so cracked. I must mention in the painting of those posts the whole work was burnt off, except the bannister railings, and they were painted with white-lead before. The peculiar thing was that only where the burning off was done on the posts did this difficulty take place. On the bannister parts the defect did not show where the white-lead was underneath. The result of the test was that in two years the proprietary paint was so far gone that we had to do all the balcony parts over again; and the white-lead was just beginning to oxidise. We washed it off, and the paint was not in any way perished. We washed it down with water, and then there was a nice little oxidation, but not serious. We painted the houses in two and a half years, which was done with proprietary paint, and the other house went for four years. That was one test I made.

7468. What was that proprietary paint? I do not want you to tell me the name of it because the man might be here. Was it a zinc paint?—Yes.

7469. DEPUTY-PRESIDENT: Does the witness know what it was composed of?

7470. MR. MANNING: Do you know what that paint was composed of?—According to what they said it was a zinc-oxide. That is what we were led to believe it was. They called it leadless paint. It is a paint well known in Sydney.

7471. Is it in use now?—I use it now. It is not used to a great extent now, but ten years ago it was very prominently used.

7472. That illustration you give is as to the relative merits of the two. What inference did you adduce from that experience, and other experiences you have had, as to the weather resisting qualities of the two paints respectively?—We quite recognise, and have all through recognised, the excessive hardness of zinc-oxide is such that it will not stand. In the mouldings, or any fancy work or exposed parts, it cracks or “crocodiles” as we call it—it goes into creases like a crocodile’s back. The lead being of a softer nature does not do so; it does not develop these peculiar characteristics. Oxidisation takes place in lead, and we say, as soon as that starts, “it is time to paint it again.” There should be a law to compel people to again paint a place when that starts.

7473. In your opinion you have not found a proper substitute for white-lead for outside purposes?—Never. It was discussed very considerably in conference last year in Melbourne. We have a testing committee in various states in Australia, and all new preparations go before those committees, and generally it runs into a discussion of lead and other substitutes—that is usually the outcome of it. The result of any test is confidential, but it goes before the council and, as I say, it usually winds up with a discussion on the relative values of lead and other substitutes.

7474. So much for the outside area. As to the inside, how do lead and zinc compare?—I am rather in favour of it, but not from a standing point of view, because I do not think that the result would be equal, but I rather like the appearance of it, especially as to Keystona and other preparations. They have a very nice appearance.

7475. What about the woodwork inside?—We do not use it there, because if we do we have invariably to varnish it. If we use leadless paints we varnish the woodwork, and it then becomes a species of enamel.

7476. You think the use of these flattings on the walls and ceiling is proper?—I think they are better than kalsomines. They take the place of kalsomine, because they have a better appearance.

7477. But they are not regarded, in comparison with lead-paint, inside as being at all better? I mean the surface on which they are used would not be painted with white-lead?—I do not look at it in that light at all, because there is no comparison as regards the standing quality.

7478. With regard to the rubbing down of surfaces—take the dry sand papering of the surface which has been burned off—do you consider any danger attaches to that process such as dust?—There is such a very small percentage of burning off now that I do not look upon it as a serious factor. If a man burns woodwork off well there are only the mouldings to be rubbed down to any extent, because the whole flat surface would be clean. I should not think the average burning off would be 10 per cent. in the trade on the outside. I have one job now of over £200, and I do not think there is half a day's burning off on it. There is another job I have of considerably over £200, and I suppose the burning off would be about two or three days at the outside. It is only city work that you would burn off to any great extent.

7479. And rubbing down a thickly coated surface is done in the wet, is it not?—By pumice stone. If the work is not serious enough to be burned off we rub down with pumice stone and water, really to break the varnish surface.

7480. You recognise, do you not, that white-lead is a poison?—Undoubtedly.

7481. Can you suggest any safeguards which should and have been in your experience adopted by operative painters to prevent any lead getting into the system?—The only safeguard I see is cleanliness at all times. My experience is that some men are essentially careless. I often speak to men now. They will perhaps get paint on their hands, and start cutting up tobacco, and put the stem of the pipe in their mouth—they must get a certain amount of paint on it. Speaking just as a layman I think a man should never suffer from lead-poisoning if he takes reasonable care. My foreman painter has been with me thirty odd years. He was apprenticed with me. I asked him if he remembered a day he had been away through sickness and he said, “no;” that the only day was when he was out fishing. I asked also this morning two of the men if they remembered being sick. One said, “no,” and the other said he had been three times off through accident but never through lead. I asked the foreman if he could remember any cases of the others being away, and he said he could not—speaking of different men. I can say I have never known or seen a case, except what was exhibited here the other day. A case of lead-poisoning has never come under my notice. Since I gave evidence before the 44-Hour Commission I have read up all the books I could get, and I was surprised to learn what I have learnt.

7482. As far as precautions are concerned, your suggestion is personal cleanliness?—Yes, all the time.

7483. And, as far as you can see, it is through having paint on the hands and taking it to the mouth that the lead gets into the system?—That is, as a layman, it appeals to me, and from reading.

7484. What about the dust from sand-papering?—I think it is not serious.

7485. I can take it, generally speaking, from your experience and the observations you have made, you do not recognise any efficient substitute for white-lead in the painting industry? No. In the discussions we have had in the council, we have never come to any other decision. That is the only possible thing we can use. We used many substitutes, but we look at the matter in this light: As one member put it, “We do not care a button what we use in the work.” We would just as well use any prepared paint; it is a matter of indifference to us.

7486. You think there is no substitute, and you have got to consider the question of efficiency?—That is so. If lead poisoning is such a vital factor, it is a wonder it has never come up before the council meetings.

7487. Has it ever been considered by the council?—Never. I have been on the council seven years, and I have never even heard it mentioned.

7488. Have any representations been made to you by any person or association of persons in connection with white-lead?—No; not until I was giving evidence on the 44-Hour Commission. I can go back to the Wages Board, I think, in 1904 or 1906. Dr. M'Donagh was giving some evidence, and he referred to the question, but we did not treat it seriously; we treated it more as a joke, the statements which were made. No more was heard about it. We have never looked upon it as a vital question in any way whatever, and it has never been considered by our council in any way.

7489. That is, as far as your practical experience has gone. I suppose you had never gone into the subject of statistics at that stage?—Since the 44-Hour Commission, I have been reading a lot upon the subject. It drew my attention to the fact, but until then I never looked at it seriously.

7490. DEPUTY-PRESIDENT: Have your various committees or conferences ever considered substitutes in relation to lead poisoning?—Never, in that light, because it has never come before us in any way. We have always considered the matter in the light of the value of the substitutes or the white-lead, but never relative to the question of lead-poisoning. I never considered it myself until giving evidence before the 44-Hour Commission; then I gave a report upon it, and that brought the matter prominently before our Association, and it will come before our council next March.

Cross-examined by Mr. CONNINGTON :—

7491. Has not the use of leadless paint increased during recent years for inside work?—Yes; in this way: We find it very satisfactory for wall work.

7492. And for ceiling work? Yes; anything like that.

7493. And the architects are recommending it?—That is right.

7494. Are not the leadless paints coming into vogue for the purpose of ceilings, walls, and so on instead of kalsomine?—Yes.

7495. Prior to those paints coming in, was it not costly to paint ceilings and walls with kalsomine?—Yes.

7496. And also with lead paint?—Of course we —

7497. Is that so?—Very seldom.

7498. Are you sure it is very seldom?—Yes.

7499. Take the Trades Hall and other public buildings we know of, the walls are always painted with lead paints?—In a good many cases that is so.

7500. Then this leadless paint is a substitute for lead paint?—No, it is not. It is simply a substitute for kalsomine.

7501. Wherever we go in public buildings we see the lead paint, so that leadless paint is a substitute for kalsomine?—You are speaking of public buildings of that kind.

7502. I do not care where it is, even if it is a private house. You know in public buildings the walls used to be painted?—Yes, in some cases.

7503. And the ceilings were painted? Yes, but very few.

7504. You do not know about public buildings?—No, only one or two of them

7505. As to those you know, were they painting the walls and ceilings, and, if so, —?—I have never given the matter sufficient consideration to notice it.

7506. The walls and ceilings of public buildings used to be painted with lead paint?—As I say, in some cases.

7507. When lead paint was used, was it as a substitute for kalsomine?—No; it was looked upon from the wear point of view.

7508. When you do away with lead paint and use leadless paints, are not the latter a substitute for the lead paint?—They are, to that extent, but it does not say they are going to give the wear.

7509. That is another point. Is the leadless paint not a substitute for the lead paint?—I do not quite follow the point of your question.

7510. Is it a fact that to-day they are using leadless paints on spaces where they formerly used lead paints?—Yes, on walls, &c.

7511. On walls and ceilings?—Yes; it has really taken the place of kalsomine to a big extent.

7512. And where they used kalsomine they are using this leadless paint now?—That is right.

7513. And where they used lead paint they are now using leadless paint?—Under certain conditions.

7514. What are the conditions?—Regarding kalsomine, many of these places were kalsomined in the old days. This leadless paint is practically a modern idea, and they found it to be of better wearing quality than the ordinary kalsomine, and being of a flat and softer tone it came more into vogue, and architects recommended it; but to say it has taken the place of the ordinary lead paint, I do not think will be correct.

7515. At one time kalsomine was used for walls and ceilings?—That is right.

7516. And someone substituted for kalsomine lead paints?—Yes.

7517. In other words, people said, "Instead of kalsomining my room I am going to paint it." Is that right?—But you would not use paint for general purposes on the walls of a house. It is only where you are going to get a lot of wear.

7518. Take this building, for instance. At one time this was kalsomined, was it not?—Yes.

7519. What is it now?—It is kalsomined.

7520. Take the Trades Hall; at one time that was kalsomined?—Yes.

7521. Then they painted it with lead paint?—Yes.

7522. Was not that lead paint a substitute for kalsomine, or was it not better to use lead paint than to use kalsomine?—It may have been from a wearing point of view.

7523. When you put lead paint on, did you not do so in preference to kalsomine;—was it a question of wear?—In a public building like that you have to consider there is going to be a good deal of wear or traffic, and kalsomine would be unsatisfactory if there is a lot of wear, so they would use lead paint instead.

7524. And for the same reason they use leadless paints now?—I suppose they have been; they find it does not dust off, or get sweaty.

7525. Am I right in saying that during recent years lead paint was used as a substitute for kalsomine, and since then lead paint is going out, and leadless paints are being used?—I admit that, for inside work. I like the appearance of it myself, but I am not going to say it will give the same wear.

7526. From standards of health have you ever taken into consideration the question of whether it would be advisable to change the use of white-lead—from the standard of health among the employees?—I have not. It is only during the last few months I have given serious consideration to it.

7527. I suppose a decision of your committee would carry considerable weight. If you decided by resolution that there is no proper substitute for lead paint, that would be a most valuable resolution to the lead paint manufacturer; would it not?—Oh, no, not at all. It is all confidential. They do not know of it. The Test Committee examination reports are all confidential. Naturally, different things are coming on to the market, and we like to know the result of those—what they are composed of, and what are their properties.

7528. Is it a fact that you analyse the different compounds which are brought on to the market?—If we think it is advisable we get the chemist to analyse it.

7529. Have you done that?—Yes, with several.

7530. Has your Association done it with regard to Keystona?—I do not remember; I would not like to say.

7531. Would you give me the name of a compound your chemist has analysed under your instructions?—No, I would not give you that. It is all confidential information.

7532. Do you know one case where the chemist has, as the result of his analysis, declared that some of the alleged leadless paints contained lead of a poisonous nature?—No, never. I do not think that in any of the paints he has ever tested for lead he has stated there is any carbonate of lead in them. I cannot call to mind any leadless paint which he has tested.

7533. There have been quite a number of new paints put on the market in recent years of the leadless variety, and you have not, to your knowledge, tested one of them?—No, we have not had occasion to, because we are supposed to get the contents of them by the reports, and we take the reports as correct.

7534. In connection with outside work, it is admitted the lead has more body, is it not?—Yes.

7535. Can you suggest any way that the poisonous effects of lead in paint can be restricted or provided against?—In what way?

7536. Take it that the paint starts to oxidise?—When it starts to do that it is time to paint over again. What I have done, and with a good deal of success near the sea air (and I have done a good bit of that near Bondi, &c.), is that if I mix 25 per cent. of zinc and 75 per cent. of lead, it is successful.

7537. It stands the weather better?—Yes; it does not get the oxidation, and does not crack to the same extent.

7538. Say you altered the mixture to 25 per cent. of lead and 75 per cent. of oxide?—It cracks at once. There is a specially prepared oil used with the zinc oxide, and I find if we use the ordinary oil we get the same failure. But when we use this specially prepared oil we get on very well. I have met with a good deal of success with it.

7539. You have got no figures showing the days your employees have been absent from work?—Unfortunately I have not. On hearing this morning's evidence, I wish I had.

7540. How many constant hands have you?—About twelve or fourteen constant hands.

7541. Of that number, can you let us see how much time, if any, each of those men has lost during the last twelve months;—can we get that information from you?—I can ask the clerk and see if he can get me the information. He draws up the pay-sheets himself.

7542. You pay a certain wage?—Of course, I can give you the total.

7543. For every week if a man earns less than the full wage he must have had time off?—You do not know what time he is away. My foreman might be away for a fortnight or three weeks holiday.

7544. May I take it, as far as the health of your employees goes, you are not prepared to express an opinion one way or the other?—I can say I have never known sickness amongst them, and some of them have been with me for thirty odd years. I asked three or four this morning. They have been my apprentices, and one spoke of accidents, but they have not been ill for other reasons.

7545. You heard some remarks this morning as to tuberculosis. What do you think about that?—I have been reading about it, and am very surprised at the information. I was astonished to find it.

7546. DEPUTY-PRESIDENT: Are you referring to the evidence of Mr. Sawkins?—No, but I have been reading some of the text-books.

7547. MR. CONNINGTON: And you are surprised to know painters suffer so severely in that way?—You have to look at it from different circumstances—whether it is that the individual following painting is not a physically strong man. It must be considered from various aspects.

7548. As a man of the world it seems to you startlingly strange?—It does.

7549. And that the same features should present themselves in other countries according to the text-books you have read?—Yes, I admit that. Of course, I say there are so many attendant circumstances that only an expert man could attempt to deal with them.

7550. But an ordinary man looking at the thing fairly would say it is a remarkable thing that, world-wide, this class of worker seems to suffer more severely from the complaints than workers in other callings?—Yes, looking at it in the ordinary way.

7551. You heard the same with regard to Bright's Disease?—Yes.

7552. Have you found in your reading that they referred to that disease as being prevalent amongst painters?—In the books I have read, but it is practically all attributed to the turpentine, and two great American writers refer very strongly—

7553. DEPUTY-PRESIDENT: You mean Kober and Hansen?—Yes, I think so. They refer frequently to the effects of turpentine.

7554. MR. CONNINGTON: In the statistics put in by Mr. Sawkins, it is remarkable that the results in Australia are similar to those arrived at by Kober and Hansen and other text-book writers?—Yes, I think those are things a layman can hardly touch upon.

7555. Suppose it was brought under your notice that as a matter of fact painters here and all over the world are suffering, rather out of proportion to their numbers, from tuberculosis and Bright's Disease, would you then again give consideration to the use of white-lead from the standpoint of health amongst your employees?—Undoubtedly I should have done so, but it has never been a vital question with us.

7556. Now you know these statistics and have read up on the subjects?—As I have said, the 44-Hour Commission set me thinking and reading a lot.

7557. Now you have done that and heard our experiences here, you are prepared to admit that something should be done to minimise the risk of white-lead in paint?—I think that to a very great extent the men should themselves be educated up to the necessity for cleanliness. I have one apprentice boy and can not impress on him that necessity.

7558. Do you allow your men time off to wash their hands at dinner time and in the afternoon before they leave?—I never restrict the men at any time. I have put up a place upstairs and soap and everything is there.

7559. As a matter of right, ought the men to be able to claim a number of minutes at dinner time and at night for the purpose of cleaning up?—A man should not get very dirty. I have worked all day, and I guarantee you would not have found a couple of spots of paint on me.

7560. But you must have fixed up this place for some reason?—Naturally, I like to see the men clean.

7561. A man must get dirty before you can make him clean up?—Under certain circumstances.

7562. Would you agree it is a fair thing, assuming cleanliness is so valuable to the life of a painter, that he should have an allowance of time before dinner and at night, and soap and water provided for the purpose of cleaning up?—Are you going to stand over him while he does it? I think he has ample opportunity in his own time. If a man gets an hour for his dinner he has plenty of time—

7563. And what about the soap?—That is a trivial matter. I would do anything to see a man keep himself clean. I would assist him in any reasonable

way, but I do not think he should ask for time off because if he cannot wash in five minutes he is sluggish.

7564. You are not willing to concede anything in that respect?—I am willing to do anything I can to assist him.

7564a. As long as it is in his own time?—A man for his own protection should recognise that cleanliness is essential.

7565. Am I wrong in suggesting that there is a considerable amount of outside painting done with zinc-oxide paint?—No, I do not think so.

7566. Do you know the Rocks area?—I should not say a very considerable amount,

7567. Relatively, is there 25 per cent. outside painting work of the city done with zinc-oxide paints?—I would not be prepared to admit that.

7568. I suppose one could not very well make an estimate?—I do not think so.

7569. But some people are using it?—Yes, but you could not go into that.

(Witness retired.)

7570. MR. MANNING: There are one or two further witnesses we would like to call, but there is a lot of technical stuff we want to go through first, and I am afraid they would not be ready to-day.

7571. DEPUTY-PRESIDENT: Do you propose to volunteer evidence under these heads: "Number of persons employed in the lead and zinc undertakings," and "The output of lead and zinc?" You have already given us some information as to the output.

7572. MR. MANNING: I could not give that information as asked for there. All I was going to do was to take the figures which have been given and add to those figures some medical evidence. If the Board can suggest anything I might do, I would be only too glad.

7573. DEPUTY-PRESIDENT: Have you obtained any evidence as to the number of persons employed in lead and zinc industrial undertakings.

7574. MR. MANNING: I will do all I can, but I think the result of my efforts would be rather incomplete. I think the Board has rather more effective machinery than we have.

7575. DEPUTY-PRESIDENT: I do not think we ought to throw the burden upon you, if you do not think it fairly falls to your lot. It is our duty, after all, to make the inquiry, and we are glad to have your assistance.

7576. MR. MANNING: Any suggestion made by the Board will be absolutely carried out to the best of our ability.

7577. DEPUTY-PRESIDENT: We gather from what we have heard that there are two manufactories of white-lead in New South Wales and we should like to hear, in order to give some answer to these questions, what number of persons they employ at the present time, what number they have employed in recent times, and what number they would employ in the immediate future, so that we may understand the employment question from the point of view of the manufacturer of white-lead.

7578. MR. MANNING: I was going to do that, and I will carry it out in a complete form in view of what you have said, and you will be able to judge whether it is adequate for the purposes you require it; if not, we will assist the Board to the utmost of our power. I think we are getting somewhere near the end, and I imagine the Board will hear addresses on the evidence. For that purpose I wanted to get some matter together in order to put it in coherent form; and I imagine the Board will adopt the same order of addressing as is adopted in Royal Commissions such as the I.W.W. Commission, as to which I can speak.

7579. DEPUTY-PRESIDENT : The Board is a Royal Commission and adopts the usual procedure. It has the powers of a Royal Commission.

7580. Mr. MANNING : I take it Mr. Connington will first put the case for Prohibition and then I will put my case, then he can reply to me.

[After discussion, it was agreed by Mr. Connington that he should present his address upon the conclusion of the hearing.]

JOSEPH MUNYARD SHEARMAN : recalled, further examined by Board :—

7581. DEPUTY-PRESIDENT : You were to have supplied the Board with some further information?—Yes, I produce return as to employment for three years ending, 30th June, 1921.

7582. The number of working days being 898 ; the trades incorporated in the return being painters, painters and dockers, joiners, shipwrights and boilermakers. The return gives in respect of each trade, the daily average number on the books ; the daily average number working ; and the absentees for all causes (including sickness), and other sicknesses only?—That is correct.

7583. Is this the daily number of absentees?—The whole thing right through is the average for that period.

7584. But there are two columns headed, "Daily average number on books," and "Daily average number working." In respect of absentees may we read it as "Daily number of absentees?"—You can take that as the daily average number of absentees over each particular calling mentioned there.

7585. Then the daily number of absentees is subdivided into the absentees for all causes (including sickness) and absentees from sickness only?—That is correct.

7586. The return shows that whereas in the case of painters the daily average number of absentees from all causes was 7·58, that, in the case of painters and dockers, stood at 31·23 ; in the case of joiners, 11·91 ; in the case of shipwrights, 9·33 ; and in the case of boilermakers, 3·61. So we may infer from the computations that have been made in this paper that the painters are, after the boilermakers, the most favourably situated of all classes employed at the Commonwealth Naval Dockyards in respect of absences from all causes including sickness?—As a matter of fact, I think, taking the total number on the second column (showing the daily average number of men working) the comparison between the painters and the boilermakers is more than favourable, taking the total number of men employed.

7587. Mr. CONNINGTON : What period are you taking?

7588. DEPUTY-PRESIDENT : During the period of the last three years, 898 working days.

7589. WITNESS : Everything taken into account.

7590. Mr. CONNINGTON : The painters were away for nine months?—That is taken into account. It is the average of the whole of the trade employees in the last three years and is extended over that period and divided out by 898 working days.

7591. DEPUTY-PRESIDENT : Cannot we disregard the daily average number on the books and take the daily average number working?—Yes, you can do that. We will wipe out the daily average number on the books and take the daily working number.

7592. Do you derive the number of absences by subtracting the daily average number working from the daily average number on the books?—The

daily average number on the books is first taken. We have four different series of books to compute from. Every man who is employed is registered on the book as being employed by the Dockyard. Then the daily book goes in, showing the total number of men working, the total number of men absent—as I explained before, with leave, without leave, sick or hurt, or annual leave.

7593. Then do you find, as you appear to have done, that the absentees are indicated by the difference between the daily average number working and the daily average number on the books?—That appears to be so, taking the totals in the two columns—one practically makes good the other.

7594. I do not suggest we should distinguish them now. You can take it in reference to either, as you suggest it might be taken. as to the daily average number working?—The daily average number working, professional painters, shows 68·36; the absentees from all causes (including sickness) is 7·58; sick only, ·93. Painters and dockers: 341·89; absentees from all causes (including sickness), 31·23; sick only, 7·19. Joiners (including carpenters and joiners who are one party): The daily average number working is 120·86; absentees from all causes (including sickness), 11·91; sick only, 2·45. Shipwrights: Daily average, 91·30; absentees from all causes (including sickness), 9·33; sick only, 2·12. Boilermakers: Daily average, 40·24; absentees from all causes (including sickness), 3·61; sick only, 1·27.

7595. You say the boilermakers are not the most favourably situated, although there is in their case only about 8 per cent. of absences. Have you worked that out in percentages for your own purposes?—No, I only got these sheets this morning. Taking the boilermakers, there we find that the greatest number employed in that particular shop is about sixty-five men. When I say “boilermakers,” I refer to men who are working under cover all the time purely and simply builders of boilers. I do not want that to be confused with another section of the workers which we class as “caulkers, rivetters, and platers”; under ordinary conditions those are all classed as boilermakers. The men I quote here are purely and simply boiler builders; they work on boilers alone.

7596. Mr. CONNINGTON: They are not shipbuilders?—No, they are not; they are caulkers, rivetters, or platers. In many cases there is a big mistake made between the two because they are all classed in the one union.

7597. Mr. COOPER: Would they caulk a new boiler when they are building?—Yes; in that shop they do the whole of that work from the fires right up to the completion of the boiler and the testing of that boiler. Shipbuilders have caulkers under a separate heading—they are a separate trade as far as we are concerned. Comparing the joiners with the painters and dockers, the average shown there, in my opinion, is much more favourable to the painter and docker than actually towards the joiner in that particular case. You show 341·89 attendants as against 120·86; for sick, 7·19 as against 2·45. Taking that on the round figure of hundreds places the painter and docker one point behind the tradesman. Taking into consideration the trades which they follow, in my opinion the painter and docker compares very favourably.

7598. DEPUTY-PRESIDENT: That is the manner in which I looked at it at first sight. The difference is so small that it will be necessary, I think, to work each out to a decimal point. I can see that there is other matter here which will take at least ten or fifteen minutes to obtain from the witness. The Board would like to discuss the list of cases that Mr. Connington made reference to in the opening of his case as to cases of lead-poisoning. The list has been reduced in proportions by Mr. Woodham at the request of the Board, and it appears that of the doctors mentioned some forty-four are

readily available. That is, they are alive and in practice within the metropolitan area. They have dealt with forty-eight of the cases. Many of the cases are those which have occurred abroad. It is quite impossible to inquire into such cases, and that is why the total number of 120 cases is reduced in this summary to 48. Mr. Routley reminds me that in many cases the doctor's name is not given at all, so that there could be no check upon the man's statement with regard to his health. In forty-four cases that check can be made fairly readily by reference to local practitioners, who are to be found in the metropolitan area. That list has not yet been put in. We assured Mr. Connington we would use our best endeavours to have the information converted into something like reliable evidence.

7599. MR. MANNING : What is the ultimate object of that? Do not think for a moment I am taking the question in a critical spirit, because I am not ; but I think the ultimate object was to show the feeling of these men towards white-lead. It was not for statistical purposes.

7600. DEPUTY-PRESIDENT : We took it as indicating the view in union circles with respect to the health effects of white-lead only. So far as we have taken it, it has been in that connection. The new question now arises as to whether it can be so treated as to be of use in connection with our statistical derivations.

7601. MR. MANNING : That is the point I am coming to. I do not see that it can.

7602. DEPUTY-PRESIDENT : Everything is at large in that connection.

7603. MR. MANNING : Can you link it up with anything?

7604. DEPUTY-PRESIDENT : We find some men referred to here have been already referred to in Dr. Nash's evidence, or the evidence of Mr. Perdriau.

7605. MR. MANNING : They are not connected with the statistics. You could not take that, for instance, and say as the result of the evidence—

7606. DEPUTY-PRESIDENT : I hope I have not misled you. This would be a new statistical venture, entirely distinct from the statistical work carried out by Mr. Sawkins.

7607. MR. MANNING : I recognise that, of course.

7608. DEPUTY-PRESIDENT : We would have to compare the cases referred to in evidence by Dr. Nash, with the cases referred to in evidence by Mr. Perdriau, and if these cases could be referred to in evidence, by other evidence. In that way we might finally say there are a certain number of cases which might be identified as cases of lead-poisoning in the State within a certain period of time. The practical difficulty on our part is this—taking a case at random—Dr. Phipps, at Mosman, who is supposed to have diagnosed the case of so-and-so as lead-poisoning. He may not have a record of the man at all ; if he kept a record when attending him, it may have been destroyed because of its age. As a matter of fact, in Mr. Connington's statement this is a case of ten years' standing, and it is very probable the doctor will not have any record with regard to him, and it is probable that if the doctor were called he would say he will be unable to remember the case.

7609. MR. MANNING : May I say this in connection with the new statistical venture you have mentioned. Any new statistical register as to which these figures would form a relative component part would be based, I presume, on figures which have been derived by the workmen's compensation figures?

7610. DEPUTY-PRESIDENT : There may be cases, as Mr. Perdriau warned us, that have not been used as a basis of claim for compensation.

7611. MR. MANNING : But we do not know how many there are. If we do not know what there are we have got no dividend as to which they may be regarded as a divisor.

7612. DEPUTY-PRESIDENT: Assuming for the moment these are all recent cases, which evidently they are not, it may be we can get each case attested to as fully as it should be attested to as a case of lead-poisoning. We can then say there are forty-eight cases of lead-poisoning, including some of Dr. Nash's and some of Mr. Perdriau, and that the balance of Dr. Nash's and the balance of Mr. Perdriau for the fifty-six—taking a number at random—cases of lead-poisoning in recent years which have been ascertained, found by the Board in the course of this inquiry.

7613. MR. MANNING: But that is as far as it can go.

7614. DEPUTY-PRESIDENT: Yes.

7615. MR. MANNING: That being as far as it can go, for them to be of any use you will have to ascertain the number of individuals actually engaged in painting operations, or in connection with the painting operations during the period covered by those fifty-six or fifty-eight cases. Is not that so?

7616. DEPUTY-PRESIDENT: Yes.

7617. MR. MANNING: I do not say it can, or not, but if it is not done those figures would not be of any use.

7618. DEPUTY-PRESIDENT: I think some effort can be made to ascertain the number of persons employed as painters, at any rate in the metropolitan area.

7619. MR. MANNING: Are those metropolitan area cases?

7620. DEPUTY-PRESIDENT: Presumably they would be because of the doctors being metropolitan doctors.

7621. MR. MANNING: I thought there were some at Wollongong, for instance. We cut those out.

7622. As long as any figures can be ascertained that are referable to a certain area exclusively and in regard to that area, so long as it can be further ascertained the total number of people in that calling who were engaged in the work in that particular year, then I would say the figures would be of some use, but not otherwise.

7623. DEPUTY-PRESIDENT: I would not like to suggest to what extent they would be of use, because the list indicates in its other entries that many of those cases may be cases of lead-poisoning from abroad. A man may have worked in the hold of a ship in a confined space with red-lead. He may have had to do in the course of the war the work of submarines which we have had described to us, and contracted lead-poisoning under very exceptional circumstances. He may have come to this State where his case may have been diagnosed as lead-poisoning after having really contracted the disease abroad. Our purpose is to ascertain the effect of the use of white-lead paints in New South Wales and under local conditions.

7624. MR. MANNING: The only reason I have for mentioning it now is that the examination of forty-four doctors is a formidable undertaking.

7625. DEPUTY-PRESIDENT: We could not subpoena them on the chance of being able to get information from there. It would not be a business-like thing to do and the Board would not commit itself to anything so reckless. To subpoena a doctor here and suddenly ask him if he remembers the case of Gustavus So-and-so, which occurred ten years ago, would be unreasonable in the extreme.

7626. MR. MANNING: What occurs to me now is that it would perhaps be as well first to find out the number of operative painters engaged in a particular year during the relative time before even asking the doctors if they can give the information.

7627. DEPUTY-PRESIDENT: What we want to do is to give Mr. Connington an opportunity of using the information which has been conveyed to him, but we must use it in such a way as not to mislead, and subject to proper safeguards. I have made these remarks in order to indicate to Mr. Connington

the very formidable difficulties which present themselves whenever any attempt is made to use this paper.

7628. MR. CONNINGTON: We do not ask anything unreasonable should be done, but it is unfortunate for us all if it cannot be checked. I would suggest, subject to the Board's approval, that the facts be set out in an official letter from the Board to the particular doctors asking do they remember the cases, and, if so, can they supply particulars which will be of use to the Board. If they say they kept no record, it would be ridiculous to ask them here to tell us that.

7629. DEPUTY-PRESIDENT: Sydney is a great port. Painters arrive from all quarters of the world into the port of Sydney in all conditions of health. Can these men be identified as men who have been in the trade in Sydney for a number of years? Quite a number of them are obviously men who have come from abroad. When you compiled your list, in the first place, you did not exclude those men.

7630. MR. CONNINGTON: We simply asked members whether they had been lead-poisoned, apparently, and took their answers and put them to you. If we know the cases it is proposed to deal with, we will give you the history of those men as far as the union can do so.

7631. DEPUTY-PRESIDENT: How many men on this list can you identify?

7632. MR. CONNINGTON: We will go through the list and give you the information later.

7633. DEPUTY-PRESIDENT: I asked Mr. Woodham to inquire from the Sydney Hospital whether they could give us their experience of the cases of treatment for lead-poisoning.

7634. MR. WOODHAM: I have made an appointment to see the Medical Superintendent to-morrow morning at half-past nine. He is away to-day.

(At 1:20 p.m. the Board adjourned until 2:15 p.m.)

(On resuming at 2:15 p.m.)

7635. DEPUTY-PRESIDENT: What is your second paper?—The second paper is the record of painters and dockers who have been sick. That was referred back over that period of eighteen months. It shows the professional painters and painters and dockers and the various diseases which they suffered from during that period.

7636. This is a record of professional painters and painters and dockers who have been shown on the sick-list from 1st January, 1920 to 30th June, 1921, also number of days lost shown against each disease?—Yes.

7637. That shows that there has been 163 painters and dockers on the sick-list, and that that number of employees has lost 2,538 days?—That is correct.

7638. And there have been 39 professional painters on the sick-list, and that number of employees have lost 522 days?—Yes.

6639. Altogether there have been 202 employees of both classes on the sick-list, and they have lost 2,900 days between them? Yes.

7640. That paper is to be read in connection with the information the doctor gave us in respect of the number of days lost by employees of all classes. What is the next paper you have?—The third paper is in regard to some information which was asked for by Mr. Connington in reference to David Smith and A. J. Childs.

7641. Is this compiled from the official records?—Yes.

7642. This gives the following information:—David Smith of 19 Shepherd-street, City, born 1888, commenced work at the Commonwealth Naval Dockyard, Cockatoo Island, on the 20th October, 1917, and finished on the 2nd November, 1917. He then recommenced on 15th January, 1919, and finished on the 23rd January, 1919. Then you show another David Smith

of 19 Shepherd-street, City, born 1864, who was employed on four occasions. On the first occasion he was employed between the 9th and 11th October 1916; on the second occasion between the 24th and 26th October, 1916. Then between the 16th and 19th March, 1917, and again between the 12th and the 15th February, 1919. You cannot say which of the two David Smiths you can identify, Mr. Connington?

7643. MR. CONNINGTON: On the information I have it states David Smith, 36 years of age, twenty-one years in the trade. He was ailing fourteen years, and the Cockatoo doctor apparently saw him in 1917. Apparently, according to the return from this witness, he was not employed there in 1917.

7644. DEPUTY-PRESIDENT: Both were employed in 1917. The older man, a man who would now be about 55 years of age, was employed for three days in 1917.

7645. MR. CONNINGTON: It is not stated here that the doctor at Cockatoo saw Mr. Childs.

7646. DEPUTY-PRESIDENT: Let us keep to David Smith at present. The other David Smith was employed for about twenty-one days in 1917.

7647. MR. CONNINGTON: The younger man states that it must have been during that period that the doctor saw him. I understand from Mr. O'Brien that both men can be obtained. If you would like to hear them, we will bring both men along.

7648. DEPUTY-PRESIDENT: I do not know why you asked for information with regard to the matter.

7649. MR. CONNINGTON: I merely asked the question. I did not ask for information. I took the view that the doctor was only there for two years, and he would not know of these cases. I do not know that I pressed it very much, seeing that the doctor was not there during the time that those men report that they were attended by the doctor.

7650. DEPUTY-PRESIDENT: Would it be of any use to us to get information with regard to the one case of lead-poisoning, if it be such in 1917? We have asked for information over the period of eighteen months just elapsed.

7651. MR. CONNINGTON: No, but we have no desire that anybody should mislead this Board.

7652. DEPUTY-PRESIDENT: You asked for information with regard to this man in a sort of cross-examination.

7653. MR. CONNINGTON: Yes, more in that way. For our purposes, we expect the members of the organisation to do the honest thing, and if there is any doubt about the information given to us we would be glad to have it checked. That is the only point in it, as far as I can see. Then again, if that man proves, or both men prove, successfully, that they have been so certified by the doctor at Cockatoo, it throws a very great doubt on the returns we have been getting from the Island.

7654. DEPUTY-PRESIDENT: Why? Two David Smiths were employed there in 1917. The doctor did not give us any information with regard to the year 1917.

7655. MR. CONNINGTON: But the doctor was not there then.

7656. DEPUTY-PRESIDENT: But we have had no information from Mr. Shearman or from anybody else about 1917.

7657. MR. CONNINGTON: No; my object was merely to check our return. Probably that is how it came out.

7658. DEPUTY-PRESIDENT: Then you find now that you have taken an earlier period, and unless we get the whole of the information with regard to that earlier period, some information affecting it is of no particular value to us.

7659. MR. CONNINGTON: I leave the matter in your hands. The only thing I want made clear to you is that we want to act in a *bona-fide* way towards the Board. Two of our members have made a statement here. If there is anything in the point, and you desire to check it, we shall bring the men along. Other than that, I am entirely in your hands in the matter.

7660. WITNESS: Might I be allowed to give you some information in regard to those two men. I heard Mr. Connington mention the fact that he referred those two men to the doctor. When I was here before they were referred to me for information, and this is the information I have obtained: David Smith, of 19 Shepherd-street, Sydney, born 1888. Various dates are given there on which he commenced work. The pay-roll shows that he was paid full time during that period. I was present when the medical records were gone through, and on this occasion checked them myself. There is absolutely no account at any time of that David Smith, of 19 Shepherd-street, born 1888, mentioned as being in the surgery by any doctor. With regard to David Smith, of 19 Shepherd-street, Sydney, born 1864, we find that the address was later altered to 29 Beaumont-street, Waterloo. The payments made to that man——

7661. MR. CONNINGTON: Just a moment. Our David Smith was only 36 years of age.

7662. DEPUTY-PRESIDENT: The witness is giving us information with regard to both.

7663. MR. CONNINGTON: Ours is the 36-year-old man.

7664. DEPUTY-PRESIDENT: The witness says with regard to him that there is no record of his ever having been under the hands of the doctor at Cockatoo.

7665. WITNESS: With regard to the man born in 1864 the same results were obtained. Full time was paid him for the periods during which he worked. There are no medical records against him either for lead or any other complaint at all. From the records which we hold, the doctor has never seen the man. Mr. Connington is bringing up the question of men's ages. I am afraid that is a thing we cannot altogether control. A man comes along, and we ask him where he was born, whether he is married or single, and what his age is. Of course, we can only take the age the man gives us. Unfortunately, I have found in our case a variation sometimes of ten years in the ages of men within six months of employment. We ask them first of all when they were born. If I do not think the man's date of birth justifies his appearance, I ask him how old he is, and you would be quite surprised at the number of cases in which the age he claims to be differs from the birth-date which he gives us. Even when you calculate it out they are hardly inclined to accept it. With regard to the Childs referred to on this return, I do not know whether that is the Childs Mr. Connington requires, but that is the only one we have on our books. That is A. J. Childs, of 62 City-road, City, born in 1889. He first started on the 28th March, 1917, and his last pay-off is on the 10th November, 1917. During the whole of that period we have no medical record of that Childs.

7666. MR. CONNINGTON: What are his front names?—They have given them to me as A. J. Childs; I think it was Alfred John Childs.

7667. But we have him down as 55 years of age?—The date of his birth entered on the return is 1889. That has been cross-checked back with the employment journal and the entry sheets. As I said, the ages cannot be accepted, unfortunately, in the majority of cases.

7668. MR. CONNINGTON: The question is, are the men telling us the truth or not. We will have it verified somehow or other.

7669. DEPUTY-PRESIDENT: Your own doubt in that matter indicates a risk that we would incur if we were to accept the table that you proffered to us.

7670. MR. CONNINGTON: I am not unmindful of that all through the case. You will remember that I impressed upon the Board the necessity of it being investigated.

7671. WITNESS: With regard to the case of Barlow, in my previous evidence I referred to a man whom we transferred from one department to another as being unfit to retain in the painting section. That man was G. Barlow, painter and docker. He went off on the 12th February, 1916. I picked his details out as promised. On the 8th March, 1916, we transferred him to the joinery. We found the man still lost time, but the principal amount of his lost time was due to malaria, which I claim in the first case had as much to do with his first illness as the lead had. We found he was losing too much time there, and we then transferred him to the department under the yard boatswain. Since that period he has been engaged in sweeping, cleaning, and general labouring work around the yard—a sort of scavenger, and since then he has been fairly regular in his attendance at work. The only medical attention we have had with regard to him was a case of a hurt knee, which occurred many years before he came to work for us. At certain periods of the year his leg seems to go stiff, and he gets a stiff knee. The other case is that of H. J. Beattie, aged 26, a professional painter. He was declared on the doctor's list on the 7th October, 1919, to the 15th October, 1919. He was checked in this case as showing slight signs of lead-poisoning. He was also a returned soldier with other complications. Shortly after this he left the Service, and we have no further records of him.

7672. DEPUTY-PRESIDENT: Does that complete the matter you have prepared for us?—Yes, that completes the lead-poisoning. With your permission I would like to go back over a portion of my evidence that I gave the other day. The principal point of the whole lot that I would like to refer to is with regard to my evidence when I gave you a rough estimate of our daily total of employees in the way of workmen. I find that I was not correct. The daily average number on the books is 2,910 workmen. That does not include the clerical staff or the managerial staff. The daily average number of absentees from all causes was 260. That includes hurts, sicknesses, and everything.

7673. That is in relation to the period of eighteen months that you referred to before?—That is over a period of three years.

7674. When does the period of the three years end?—On the 10th June last. With regard to the other evidence which I gave, I would like to point out that I referred to Black as having been poisoned for four months. It should read three months. There are other entries in the evidence where I referred to the same thing as four months, and I would like those corrected, with your permission, to three months. With regard to the percentages of men, I have already handed you papers on that. In dealing with anti-fouling compositions, I have stated that the vehicle contained there would be a petroleum. I think it would be nearer to the thing if I entered that as naphtha, or a like material. I find that the petroleum is not present in the general run of commercials. There was a question dealing with enamelling, where we used a first-class enamel. In the evidence it states "First saloon accommodation," that, really, if I may be allowed to correct myself, should be saloon and passenger accommodation. I did not intend to infer that the second-class enamels which we use contain lead, although a question may have been put to me by Mr. Connington which might cause you to infer in reading the evidence that leads were contained in that enamel. The next matter is a statement there which reads that I said that, in the process of enamelling, I would use half lead or half zinc. That should read "half lead

and half zinc." With regard to the medical officer's inspection of men. I said it was once a week, but it should have been once a fortnight. The same thing is referred to later. I find that plumbers are not examined; electricians are examined when working with lead cables. Later the percentages again are referred to. In all cases I think that might be applied to the question of the rough percentages of the total number of men in the yard. There is one matter I cannot follow; the thing is rather incomplete. The question is, "You have known cases of the doctor deciding against the workmen and the management . . ." Then the answer is, "Transferring him across." That in itself seems to be short. It is Mr. Connington's question.

7675. MR. CONNINGTON: I think you told us that there were cases where the doctor directed a change of employment, and the management transferred the man to another department?—Yes.

7676. But they reserved the right to exercise the option of putting him off altogether if they think proper.—I see. Then there seems to be a misprint. The question asked is, "But what are you using at Cockatoo?" And the answer is, "What we are using in the way of enamels are of a distinct lead base." That should have read, "of a distinct zinc base." I referred to a line of sixteen troughs for the purpose of the men washing. That should really be twenty-four troughs. With your consent, Mr. President, I would like to add further information on that particular point. With regard to the professional painters, we place for them temporary shops, or stores, on board the ships. On those occasions there is a man attached to that ship who looks after the material, he also provides buckets of water (dependent on the number of men who are working there) at each break for the purpose of the men washing their hands.

7677. DEPUTY-PRESIDENT: So that they have not to go to the shop on the Island?—So that professional painters, except the men actually working in the shop, never wash there; they wash on the job. I think that is the lot, with the exception of one little point in regard to a man whom I referred to as reporting himself ill, and we found he had been working with oxide. We went into that case, and I would like to give you the conclusion we arrived at. The way that we worked the case out was that we went into the man's history and found that he had worked for us for a period of three months, previous to which he had been in the country. We went into the question of the work the man was performing and found he was oxidising and oiling plain surfaces with boiled oil. On examining the space in which he had worked we found that there was no free current of air there. The method of supplying air was by putting in a compressed air hose. That atmosphere which we pumped in by that means would contain a bigger percentage of moisture than the normal atmosphere. We exhausted with an electrical fan for the same space so as to keep the double flow going. In that compartment the entrance and the exit were only small, just sufficient for a man with experience to get through. There were pockets in that space in which it was a matter of practical impossibility to keep the circulation of air going. The consequence was that those pockets would become loaded with atmosphere which the man had already breathed and expelled from his lungs, in addition to the paint drying, which requires oxygen to dry it. We arrived at the conclusion that the atmosphere was deficient in oxygen, and through those pockets the carbonic acid gas was of a greater percentage than was safe for the man. Hence the decision arrived at by the late Dr. Francis and myself in that case was that that man, to all intents and purposes, was suffering from carbonic acid gas poisoning. He was removed from that space, and he lost no time. A few days afterwards there was a complete recovery in the case. That was the full conclusion arrived at in that particular case.

7678. You told us that you had been present at the medical reviews made by the doctor?—I was present at the medical reviews held by Dr. Francis and Dr. Ekin, and on several occasions the doctor who followed him. His name I am not quite clear on; but he was the doctor previous to Dr. Roberts.

7679. I think you told us that you had seen the lead-line on the gums of men who were under examination at those reviews?—In so far as I am able to judge the lead-line, of course.

7680. Dr. Roberts subsequently told us that in his experience he had not seen an indisputable lead-line at all?—Of course, Dr. Roberts would be in a better position to judge than I would be. In so far as I can judge a man from my experience, as a layman with these cases, we take the line from the top of the tooth on the first edge of the gum. In many cases you could not say definitely that it was lead or filth, but judging by a little higher you then begin to see a difference in the colour of the gum, until such time—I have never seen the extreme case—that there would be an extreme line round the gum. It would be only in the proximity of the lower edge of the gum and the upper edge of the teeth. You would there get a line which shows blue. Since getting that evidence I have seen the records of a case. In going through the records I did not go through them with the doctor, but with an attendant. I asked for particulars with regard to the case. One of the men's tooth was very loose I believe, and the tooth was drawn simply by catching hold of it, and it was submitted to the analyst—whether the departmental one at Cockatoo or one in the city, I cannot say. That tooth was submitted to see if the blue line which was contained on the tooth itself was lead. The return was that there was no lead present there. It was rather a hard case, I believe. The man eventually finished up by working in the quarries. He was a labourer. Of course that may have been one of the cases which I would take as being lead.

7681. We understood, of course, that you looked at the mouths of the men who were undergoing the examination with the eye of a layman?—Yes.

7682. Mr. CONNINGTON: With regard to these figures, I want to know how you have compiled them. Take No. 1, painters and painters and dockers return as to employment for the three years ending 30th June, 1921?—They were compiled by a clerk in the accounts' office in charge of those particular sheets.

7683. Reading columns 1 and 2, the average person would, I think, be led to believe that the average number of persons employed by you as painters was 75·94, and out of that number there was a daily average of 68·36 working in constant work?—During that period, over three years.

7684. But that is not in accord with fact, is it?—How do you mean?

7685. For example, while the transports were here you might have had 100 or 150 painters on at the one time—on one day, or for one month?—Yes.

7686. You show a figure here of 75·94. What do you mean by, "Daily average number on books?"—That, in the first place, is taken on these lines: The total number of painters employed during the three years were taken, and these are the men whose names are actually on our books as painters, and supposed to be working. They are employed by us. Whether they are working or not is left to the next column to be seen.

7687. DEPUTY-PRESIDENT: How did you derive the daily average number of painters on the books?—By taking the total number over three years on the books.

7688. The total number of individuals?—The total number shown in figures as being on the books.

7689. But is that the total number of man-days, or the total number of individuals? Let me point out the difficulty. If you had taken a list of so

many thousand names from the books in one year and had divided that by say, 300, as representing the number of working days, that would give you a false return if the number of men had been great at one period and small at another?—Exactly.

7690. Would it not be necessary for you to take the number of days that the individual worked and so convert him from a man into so many men-days?—Possibly it would be.

7691. And then divide by the 300?—Possibly it would be so, but I am afraid that is not the case here. In this case it was a sheet on similar lines to that which I have here. The various trades are represented by the number of men each day.

7692. Mr. CONNINGTON: I know how you do it?—You yourself have seen that sheet.

7693. Yes; you might have 150 for two months?—Yes.

7694. Then you might run for three months with 30 or perhaps 20?—Yes.

7695. Supposing that the average daily number on the books for 898 days is, as appears on this sheet, it would appear as if you had 67,000 persons engaged in that occupation?—Yes, in that occupation.

7696. DEPUTY-PRESIDENT: Why would it appear that the person differed every day?

7697. Mr. CONNINGTON: On the system that the witness has employed in the case.

7698. What you did was this: you counted every man day all through. For example, the same man might have been counted 399 times in your computation—

7699. Mr. ROUTLEY: Not in one year.

7700. Mr. CONNINGTON: No, in three years. Some men might have been counted 899 times under your system of computation?—Yes.

7701. Then again, the number might be in one case 150 for a month, and only 20 perhaps for the following month. Coming to the average number of men working, you get a figure of 68·36?—Yes.

7702. It seems to me that the impression one would have would be that practically the men were regularly employed at Cockatoo?

7703. DEPUTY-PRESIDENT: I can see no objection to the witness taking Jones as being Jones 899 or 899 Joneses, and dividing the Joneses and the Browns as so multiplied by the number of working days; that would give you a reliable result. But that the witness does not appear to have done.

7704. Mr. CONNINGTON: No, that has not been done.

7705. You have made out the number of hours you have paid for and then you have divided that by the number of times the names have appeared during the period?—There are no names appearing in this particular case at all.

7706. But you got your 75·94 from a list of names?—No, from a list of numbers.

7707. But the numbers represent some person?—Yes.

7708. The next column is with regard to absentees from all causes, including sick; are we to take it that there were 7·58 out of 75·94 painters off during the three years?—That would be the daily average, from all causes, of men absent from the yard.

7709. Is that a figure or a percentage?—They are given to me as percentages. The way they explained these figures to me was that the absentees there were based on the average daily number in the book.

7710. What really happens is this: the number of days that men were off, divided by 898, gives 7·58?—Exactly.

7711. Is that 7·58 of the number of men on your method of computation, or is it 7·58 of the actual men who were working?—The actual number of men who were on the books.

7712. DEPUTY-PRESIDENT: Obviously the 7·58 is the result of subtraction of one figure from the other.

7713. Mr. CONNINGTON: That is what I say.

7714. DEPUTY-PRESIDENT: Obviously it is. In each case it corresponds.

7715. Mr. CONNINGTON: That is what I say. It is not a percentage; it is a figure derived by subtraction.

7716. Taking the '93, sick only, what relationship has that got to either of the other figures, and how is the calculation made?—Taking it on that line, the conclusion I would naturally arrive at there would be that the same method has been followed out.

7717. You have gone into a system of subtraction here, and you struck the figure 7?—Yes.

7718. Omitting decimals, 7 as to 68 would be about 11 per cent., and 7 as to 75 would be about 9 per cent. on a percentage basis, so that neither corresponds with the '93—

7719. DEPUTY-PRESIDENT: But the 7·58 includes sickness. The sickness represents a fraction of the total causes.

7720. Mr. CONNINGTON: But I take it that this must be a figure that has no relationship to the other figure.

7721. DEPUTY-PRESIDENT: No, it is not derived from the other figures. It is derived from an independent source.

7722. Mr. CONNINGTON: It has no relationship to the figures in the other two columns at all. It must have been a figure taken from an entry in the book, and divided somehow by some of those totals that they have arrived at. I think that is it.

7723. DEPUTY-PRESIDENT: It must, of course, represent a percentage of the 7·58. If they know what percentage of absences was due to illnesses, it would be easy enough to derive that figure from the 7·58.

7724. Mr. MANNING: He would have the sum total on which the 7·58 was arrived at, and he would have the number included in that total who were sick only, and then he would ascertain the percentage '93 by dividing one into the other.

7725. DEPUTY-PRESIDENT: He would ascertain the number of days, *i.e.*, '93 days, by applying the percentage to the 7·58.

7726. Mr. CONNINGTON: In effect, this system brings out that about 7 men were absent every day.

7727. DEPUTY-PRESIDENT: Yes. Of course, it must be borne in mind that we are talking about an artificial calculation altogether. There were not 68·36 men actually working every day, and there were not 7·58 men actually absent every day. It is a mathematical picture.

7728. Mr. CONNINGTON: Yes, that is so. This brings out 7 men idle each day; but then they show '93; that would seem to me to be about 12½ per cent. I cannot see how he gets that.

7729. You did not compile the figures?—No.

7730. And all you have explained to you is what they told you?—Yes, what has been explained to me as the method by which they arrived at it.

7731. But you will admit that I am stating the position correctly when I say that sometimes when the transports would be there you might have 150 men on, and then it might run down to the normal number of about 20, or whatever you employ normally?—That is so.

7732. Again, for the last nine months or thereabout the painting work has been done by the contractor at the island?—Not by a contractor on

behalf of the island. I will put it this way—that it has been done by outside people.

7733. Then for nine months you have not employed painters at the island, and there has been no record of the time worked by them, or the time away through illness?—I do not know the conditions under which this work is done by the outside people.

7734. Mr. CONNINGTON: To that extent, the nine months in the three years is 25 per cent., and if the sick figure is merely a book entry checked against something else it will have a most important bearing on the '93 per cent.

7735. As to painters and dockers, you have had as many as 500 or 600 shipbuilders there when the transport work was in full swing?—Yes.

7736. The work fluctuates during days and sometimes during weeks, and the men who come and go may, or may not, be the same men?—That is so.

7737. Your ruling feature is not to recognise any sickness under three days, from yesterday's evidence?—If a man is out for more than three days he must produce a certificate that he has been sick. We recognise sickness from the date the man takes ill.

7738. What are known as casual hands are not paid for any sickness by you under any circumstances?—We pay for no sickness at all (referring to men outside the staff altogether), only for accidents, for anything that comes under the accident or hurt sheet, with the exception of during the influenza time.

7739. Is it not the practice to allow men of over twelve months' service who have not lost twelve days in the year through any cause twelve days annual leave?—It was so.

7740. Boilermakers are men who are regularly engaged. Generally speaking, they lose little time?—Yes, they are particularly low. They were the most regular men of any.

7741. I notice the figure is only 3·60 from all causes. They have had twelve days annual leave, perhaps, during the three years?—It is possible, but I cannot say. I know the figure as set out there shows rather much against the number of men for the period.

7742. They get twelve days per year?—That is right.

7743. Suppose 50 per cent. of them got twelve days, it would certainly affect the average?—Speaking from memory of what I was told in reference to these figures, I do not think that annual leave would count in those cases.

7744. It is "absent from all causes"?—The man is being paid, and it is a question whether he would be included.

7745. Someone else has compiled these figures, and you have to make the best you can of them?—Yes.

7746. Mr. ROUTLEY: Absence from all causes would be all days on which they are expected to be at work. If they were away on twelve days leave that would not be included in the twelve days.

7747. Mr. CONNINGTON: I have known cases of men who have failed to report, and their absence is not noted.

7748. WITNESS: I cannot accept that.

7749. Mr. CONNINGTON: They are allowed twelve days?—On certain days.

7750. And you think, Mr. Routley, that should be excluded. It should properly be so.

7751. WITNESS: A man is not absent without leave. If he were absent on his annual leave he would be marked, so it would not be a day on which he was expected to work.

7752. Mr. CONNINGTON: I should not say so, but still there it is, "all causes except sickness."

7753. DEPUTY-PRESIDENT: Everything depends upon whether the documents will contain his name in respect of that day. If it is removed, he will not be counted. If he is on the book, presumably, it will be counted, at any rate years after the date the book is entered up.

7754. Mr. MANNING: These figures cannot be analysed, so why not pass them out?

7755. DEPUTY-PRESIDENT: I am inclined to do that.

7756. Mr. CONNINGTON: You have a fortnightly or weekly review, have you not?—I said fortnightly, but should have said weekly. Up till the last doctor I attended them all myself.

7757. We are informed that men are there for six, eight, or nine months, and have never yet been called to go before the doctor. Is the fortnightly or weekly review going on?—I cannot say whether at the present time the fortnightly review is going on.

7758. I mean during the last two years?—Yes, as far as the professional painters are concerned, it has taken place.

7759. Will you swear that of your own knowledge?—Yes. I may point out that when I say “fortnightly” review it might mean sixteen days.

7760. Well, take a month?—The fortnightly review comes round and I am notified. When I get the notification that the men have to be reviewed, I might have fifty or sixty down the Harbour and I cannot bring them back at once, but at the first opportunity that gang comes into the yard and is sent along.

7761. The information I have is this, that a man might be there say for nine months and will never be once called before the doctor. I am informed men have been there for that time and have not seen the doctor. I would be glad to know whether it happens or not?—Very well.

7762. Mr. MANNING: Can you compare the classes from which painters and dockers are recruited, and the professional painters? Have you any distinction between them?—Taking the painters and dockers they start as seamen, firemen, cooks, stewards—sea-faring men—and a large number of men who have followed various occupations such as clerical work, lawyers, solicitors, doctors; I have had all descriptions of men; I have even had a man who at one time followed a life of religion.

7763. They are mostly people cast off from other occupations?—Yes, and drifters. Unfortunately of late we have had a great number of young men from 18 to 23 years of age who are purely drifters.

7764. The professional painters have been there, mostly, from their apprenticeship?—I cannot speak as to that. There was a time, previous to Mr. Addison's time, when anyone was made a painter.

7765. DEPUTY-PRESIDENT: We will make an Exhibit of the document entitled “Record of Professional Painters and Dockers who have been shown on sick list from 1st January, 1920, to 30th June, 1921.” That complements the doctor's evidence. There is only the one sheet shown.

[*Document, as above, put in; marked Exhibit No. 17.*]

7766. Mr. CONNINGTON: I would like to have this noted: For the first nine months, to 30th June, 1921, the painting work has been done by outside authorities.

7767. DEPUTY-PRESIDENT: That is in the examination. It has really got nothing to do with Mr. Shearman. That complements the doctor's evidence. He said he would bring the Board a sheet showing the medical causes of illnesses amongst the painters.

7768. Mr. CONNINGTON: From the 1st January, 1920, to 30th June, 1921.

7769. DEPUTY-PRESIDENT: A period of eighteen months; and that has to be read in conjunction with the other sheets the doctor gave the Board.

7770. Mr. CONNINGTON: If it is read as showing the number of painters laid up during the last eighteen months, I say—

7771. DEPUTY-PRESIDENT: We have that on the notes. We will not take in the exhibit, the return as to the 898 days. It is too uncertain as to the days, method, and effect. You made, Mr. Connington, a suggestion to the Board this morning that the Board should communicate with the doctors taken from your list, and that they be invited to inform the Board by letter if they remembered the cases and whether they could attend for the purpose of giving evidence with regard thereto. I do not imagine for one moment that a single one of the doctors so addressed would send a favorable reply. I am afraid their reply would be that they are not prepared to disclose anything about their patient, without his consent.

7772. Mr. CONNINGTON: Can we help the inquiry in any further way?

7773. DEPUTY-PRESIDENT: This list can be further reduced, if you can tell us how many of the men appearing in the column as patients can be communicated with now by the union?

7774. Mr. CONNINGTON: Mr. O'Brien can tell us that, perhaps. I find that Dr. Bruce, of Enmore, had two patients; Dr. Nash had six or seven; and Dr. Mobbs, of Balmain, had two. It will be remembered that the doctor from Cockatoo Island gave the name of C. Black. That would be three we can give you, and one the Cockatoo doctor referred to yesterday.

7775. DEPUTY-PRESIDENT: Dr. Shirlow, of Balmain, appears to have attended two patients.

7776. Mr. ROUTLEY: Dr. Bruce, of Enmore, attended one man who was also attended by Dr. Mobbs.

7777. DEPUTY-PRESIDENT: And one of the same men evidently was attended by Dr. Trindall, of Enmore, and by Dr. Nash.

7778. Mr. CONNINGTON: We have a case of a man whose name does not appear on Dr. Nash's list. If we can manage to get any information from Dr. Nash with regard to cases other than those which came before him in his capacity of Certifying Surgeon, I should be glad. I made the mistake of thinking every case came before him, but now we find there was one case which did not come before him—there would not be many, anyway, certified to by Commonwealth authority.

7779. Mr. ROUTLEY: If the case you refer to is that of Hughes, he is in the list which you made up this morning.

7780. DEPUTY-PRESIDENT: If you can inform the Board how many of these men named as patients are agreeable to the doctor being called, then we might communicate with the doctors who have attended upon them; we might inform them that the men desire that they should give evidence with regard to their treatment of them in times past.

7781. Mr. CONNINGTON: We can despatch a letter to them immediately, and give the Board a reply at the earliest possible moment.

(At 3-30 p.m. the Board adjourned until 10 a.m. on Monday, 18th instant, at the Board room.)

TWELFTH SITTING.

MONDAY, 18 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

HARRY BROWN SEVIER, sworn, examined by Mr. MANNING :—

7782. What are you ?—I am managing director of Lewis Berger and Sons (Australia) Limited.

7783. How long have you held that position ?—Since the formation of the company, about six years ago.

7784. What is your nationality ?—I was born in America, and am a naturalised Australian.

7785. What is the nationality of the company of which you are the managing director ?—It is strictly British. The majority of our shares are held by the parent company in England, which is strictly a British organisation.

7786. How long is it since your company commenced manufacture in Australia ?—Since 1917. Our first production was in October, 1917.

7787. What is the scope of operations ?—We are corrodors of white-lead, and manufacturers of paints and varnishes.

7788. For what classes of paints do you have demands ?—The manufacture practically all classes of paints. Our principal lines, however, are the prepared paints.

7789. And for the purposes of that paint do you find white-lead necessary ?—Absolutely.

7790. You have said you are corrodors of white-lead and manufacturers of paints and varnishes ?—Yes.

7791. What is your present output of white-lead ?—From 7,000 tons to 7,500 tons per annum. We estimate our output could be increased to 9,000 tons by working at full speed all the time if the demand existed.

7792. And that 7,000 to 7,500 tons : I suppose some portion is used for the manufacture of your own paints and some is supplied outside for the manufacture of paints by those using and mixing paints ?—Yes, the output is altogether used for the manufacture of paints, either by ourselves or by painters who mix their own paints.

7793. DEPUTY-PRESIDENT : Is there any white-lead exported for paint manufacture ?—Only to New Zealand.

7794. MR. MANNING : We have heard some mention made here of non-poisonous paints. Do you manufacture non-poisonous paints ?—There are very few non-poisonous paints from our point of view. Practically all the paints we make, except our water paints, are made with turpentine and oil, and it is very hard to say what it is. We class a paint made with turpentine as poisonous to the painter—as poisonous almost as any other paints. The volatile nature of the turpentine we reckon would cause it to be classed as just as poisonous as any other kind of paint.

7795. Is that on account of the turpentine fumes ?—Yes.

7796. What do they give as to wear ; have you any experience of that ?—No, I have never used them sufficiently to speak from personal experience. The only really non-poisonous paint, or what we consider so, is this water paint I spoke of. That is, to some extent they are used for outside use, but

the large proportion is used on interior work. That is not considered a high-grade paint.

7797. What do you mean by interior work ?—Walls and ceilings.

7798. You mentioned that sometimes it is used outside. Is that for what whitewash would sometimes be used ? It is not a substitute for paint ?—No, it is only a cheap job.

7799. DEPUTY-PRESIDENT : Can a continuous film be produced with any vehicle other than oil ?—In my judgment, no. If you take any volatile liquid, it does not produce the film that linseed oil does. It, to a certain extent, holds the pigment in suspension, but does not produce the film that linseed oil gives.

7800. What is the vehicle with the water paint—water ?—Yes.

7801. And size ?—Yes, there is a certain size used with it, and usually a preservative.

7802. To counteract the effect of the size ?—Yes.

7803. I suppose the size is organic matter ?—Yes, it is animal matter, usually made with animal fat.

7804. Mr. MANNING : What is the function of the turpentine ?—To make the paint spread more easily, and to help the drying.

7805. Can it be eliminated ?—In my experience, no. You cannot make a paint without turpentine.

7806. You have told us on general lines what your business is. What is the amount of capital employed in the enterprise ?—It is £691,000. That is not the capital—it is the total investment according to our audit taken on 30th June.

7807. That is really the valuation of your assets ?—Yes.

7808. What proportion of that is devoted to your white-lead section ?—Approximately £400,000.

7809. How many employees have you ?—They vary from 370, our present pay-roll, to as many as 400.

7810. What is the amount of your pay-roll per annum, approximately ?—About £113,000 for the past twelve months.

7811. That includes all workers ?—It includes everything, wages and salaries.

7812. In addition to your own workers do other Australian industries benefit in any way from your business ?—Yes, we purchase a great many things locally. For instance, we have over half-a-million refinery corroding pots in use all the time, and there are replacements which gives work to a good many men at the potteries. We also use immense quantities of tan bark, which was considered a waste product before we started our business. We used about 6,000 tons of that last year.

7813. What do you pay per annum for replacements of those pots ?—About £3,500.

7814. Have you any idea of the cost of the purchasing of those pots originally ?—Yes, they would run into about £16,000.

7815. Then you were speaking of tan bark—that runs to 6,000 tons ?—That is right.

7816. What else ?—Kegs and drums, which we purchase locally to the extent of £22,000 per annum, and tins to the extent of £35,000, and acetic acid, more than £5,000. These are all local productions. Our pig-lead we purchase altogether from the local producers, Port Pirie, and the Sulphide Corporation, except one small shipment, which we were forced to import from England during the strike. This runs into a very large sum. In addition, we also purchase locally made linseed oil to the extent of a quarter of a million gallons per annum.

7817. DEPUTY-PRESIDENT: Have you any objection to saying what your pig-lead costs you?—No; I think the last contract was at about £27 10s. per ton. It is only recently we have been able to get it at that price. You will probably understand in this process lead corrosion takes a long time. The lead stays in the stacks for approximately 120 days, from the time it is placed there before it is sufficiently corroded to be drawn, and for that reason our costs do not go down as quickly as the market price of pig-lead.

7818. What would be the effect on your works if the use of lead were prohibited?—It would put us out of business if white-lead could not be used, and——.

7819. Could you carry on at all?—No, I do not think so.

7820. Will you tell us under what conditions and restrictions, as far as the law is concerned, your business is carried on?—I believe there is no actual restriction, except under the Factories Act, that we must keep the premises to the satisfaction of the inspectors.

7821. Are there any special regulations made with respect to the manufacture of white-lead?—I believe not. At one time there was a good deal of talk of restricting it, but I am under the impression that it has never been put into effect. We made our own restrictions in the first instance, and have always kept up to those.

7822. Are you not practically in a unique position as far as lead corroding is concerned, in English-speaking countries?—Yes.

7823. You are practically the only lead corrodors who work free from special regulations with respect to dangerous trades?—I believe we are, from what I have heard of the laws in other countries.

7824. Will you give the Board some idea of the manner in which you have discharged the trust, which is evidently placed in you by this community?—When first we started we endeavoured to impress the men with the absolute necessity of keeping clean. We furnish our men with a complete change of clothing when they come along in the morning, and they are obliged to leave their lunch boxes in the wash-room. When I say "complete change" of clothing, I mean overalls.

7825. Do they change their boots?—No. They work in the same boots as they come to work in. Some of the men change them, but we do not require that to be done. When they are ready for lunch they must go to the wash-room and thoroughly cleanse themselves before taking out their lunch boxes.

7826. Must they strip themselves of the overalls?—No, but they must wash their hands and faces before getting their lunch boxes. When they knock off in the evening they must again cleanse themselves thoroughly before changing their clothes, and the "drawers," the men working in the pits drawing the white-lead, must have either a shower or a plunge-bath before they go out. In addition to that, we have notices posted round about the place with regard to medical regulations and the care of their health; we attempt to impress upon them the necessity of keeping themselves in good condition, in regard to taking laxatives, and we also have a medical inspection once a week. Every Wednesday afternoon a doctor inspects all the men in the lead department.

7827. Have you a copy of the notices you post up?—No, not with me. I may explain I thought the Board was coming out to view our works, and that they would see all these things out there.

7828. Were these advices as to the protection of health prepared with the assistance of your medical superintendent?—No, we really prepared those before we got our medical superintendent. We took the points from the

information we had from the plants in America—we modelled them along the same lines.

7829. Will you bring a copy of those to the Board?—Yes.

7830. With regard to your medical superintendent, have you a qualified medical practitioner on your staff?—No. He visits the works once a week, on Wednesday afternoon. He is on our permanent pay-roll, but does not stop on the premises all the time.

7831. Will you tell us the methods of this weekly inspection?—He comes along first and gets the cards (we have one for every man) and with an assistant from the office, goes to the different departments and lines the men up, and the assistant checks them off as they come along. The medical officer examines them in particular as to their gums, their finger-nails, and looks at their eyes if they do not look absolutely fit. The majority of the men have been with us since the inception of the works, and he does not make them pass through a very close examination unless he sees something wrong; but he does examine their gums and finger-nails, and insists upon the necessity of keeping their teeth and gums clean. It has been our hardest proposition, really, to get the men to realise that they must keep their mouths in good condition.

7832. Is this inspection largely a dental inspection?—Yes, to a large extent. If a man has a complaint at all to make, or if the doctor can see from his appearance that he is in any way affected by the lead, or anything else, he puts him on one side and makes a closer examination later.

7833. Are the domestic conditions of such man inquired into? Does the medical officer concern himself at all with the domestic surroundings of a person who appears to be suffering in health?—I do not think so. I suppose he does take that into consideration in his examination of the men. I may say that we have had very little sickness, except during influenza times, and there has been very little of that to consider.

7834. Is a record kept of the result of this weekly survey?—If there is a man who needs any attention at all, a record is kept, if he is not absolutely right. If he is quite all right his name is simply ticked off on the book to show he has been examined. In case of any signs of sickness or ill-health of any kind, a complete record is made of it.

7835. Necessarily your medical superintendent must then concern himself with all variations of health, not only those which may be attributable to the effects of white-lead?—That is so.

7836. Practically, then, the employees of your company get free medical advice once a week?—That is in the lead departments only.

7837. Is there no risk in the paint-manufacturing department?—We do not consider so. They do not handle any dry lead at all. Of course, we impress upon all the employees the necessity of cleanliness, and have facilities for hot water all the time with plenty of nail brushes and soap brushes to scrub themselves with.

7838. Have you a notice corresponding to that in the whitelead department, in the manufacturing section?—Yes, except in the “water” house. We are not concerned with that.

7839. What is generally the effect of this record of the health conditions of the employees in the white-lead factory?—I was speaking to our doctor in regard to that last week, and he says he thinks our men are exceptionally healthy. In fact, I may say the men in the corroding shop (and where any danger exists, that would be a dangerous part, where they are handling the white-lead) a few weeks ago, won the championship in a tug-of-war competition. This will give you an idea of the physique of the men. They are really strong-looking men, and seem to be in good health all the time.

7840. Is there any test of health made before a man is given employment in the white-lead works?—No.

7841. Is he not examined for weaknesses in the kidneys, for instance?—No.

7842. What is your form of record as kept by the doctor or as kept upon the doctor's reports, so far as defects in the health of the employees in the corroding section of your works is concerned?—We have only met with one case of lead-poisoning, and that was the foreman in the corroding stacks, who acknowledged he acted very foolishly in disobeying instructions by going into the separator room without a mask on. That is the only case we have on record of any lead-poisoning whatever. There was one other case mentioned here once before—that of Jones, a very doubtful case. Our physician decided he did not have lead-poisoning, and sent him to Dr. Graham, and you will probably remember Dr. Graham's evidence that he considered this man a very doubtful case.

7843. However, the company was responsibly advised that this was not a case of lead-poisoning?—Yes.

7844. Mr. MANNING: You might mention what is the separating-room?—It is all in dust-proof machinery. It is a conveyer. When the lead goes from the corroding works, it is taken in an elevator up to the top and worked down through the different screens and rolls. It is all enclosed and dust-proof, but once in a great-while there will be possibly a stoppage in there. When such a thing happens (this room is closed off to itself) our rules are that a man must put on a respirator before going in to investigate the case. In this particular instance the man was in a hurry and rushed in without a mask; he evidently took in a considerable quantity of lead, because he had a rather sharp attack.

7845. Of what kind?—Lead colic, and all the symptoms of lead-poisoning. The doctor treated him for that, and he recovered entirely, and has been back in his old place ever since. That happened about eighteen months or two years ago.

7846. Has he had a recurrence of the disease since?—No; I was only speaking to him last week, and he is quite healthy and strong again.

7847. Do you induce your men to take diluted sulphuric?—No. We furnish them with a laxative, or with physic, if they are at all constipated. They all understand that they can have medicines at any time if they are not feeling just right.

7848. Have you got a dispensary on the works?—There is an emergency place, which is in the hands of the chemist. When it comes to the case of illness we send for the doctor, but if a man asks for a purgative or laxative, we furnish it without a doctor's prescription.

7849. Without charge?—Yes.

7850. Does your medical record show that there has been any development of attacks of Bright's disease?—No.

7851. Or of phthisis, amongst the employees?—We have never had a case either of Bright's disease or phthisis.

7852. Then we may take it you regard the manufacture of paints as being an industry that should not be classified as dangerous?—Under ordinary circumstances, yes.

7853. You have spoken to us already about the effects of handling turpentine. What precautions are insisted upon in your works when turpentine is being mixed with paint materials?—A large proportion of the turpentine at our works is used at the varnishing works and oil refinery, where the liquids are made up for the paints. The turpentine is always added there, out in the open, so that the fumes arising from it may escape into the atmosphere.

7854. Do you think that is safer than an air suction process which would take the fumes away from indoors?—It is safer in two ways. I think it is just as safe. A man working in turpentine is working in the open air and does not stand right over the fumes, so does not get the full fumes. Turpentine is very volatile and the fumes escape very quickly. Our principal reason for doing it that way is on account of the fire risk. In adding turpentine to the hot oils there is a danger of a flash, if it is done indoors, in a room. For that reason the volatile thinners are added outdoors.

7855. Have you had any reason to suspect that the handling of turpentine has caused illness in your paint-shop?—No, a man would be handling turpentine for such a very small percentage of his time. In making up the liquid for one of the flat oil paints, where turpentine is very largely used—it is perhaps the principal vehicle—the time taken in adding this turpentine is so very slight in comparison with the time put in by the men with the colors and dealing with the oils, that it would not amount to 5 per cent.

7856. MR. MANNING: Is it correct, the fumes of turpentine are really mostly given off in spreading the paint on a surface?—That is so.

7857. And when it is "intact" there are practically no fumes?—No, there are none.

7858. DEPUTY-PRESIDENT: Is turpentine so volatile that it will waste when kept in an uncovered tank or an uncorked bottle?—To a certain extent, but very slight. I should judge, from a layman's point of view, that the friction of brushing would cause the fumes to arise more than handling it in bulk.

7859. Are the men engaged in mixing the white-lead when paint is being manufactured, protected in any particular way?—No.

7860. Do they wear overalls?—Yes, and they have access to the hot and cold water baths.

7861. There is no medical inspection?—No. In handling the lead in mixing, they really do not come into contact with the lead. There is no necessity for a man to get it on to his clothes at all.

7862. The mixing is done by a paint-mixer—there is no handling of it?—The great danger in making dry white-lead up would be that a man would empty a cask of white-lead into the mixer and a dust would arise in a cloud. It was considered a dangerous operation, but we use paste already mixed with the oil.

7863. Is the paste-lead put into the drums?—No, it is carried up from the pulpers in a bucket.

7864. And the men who are emptying the tanks into the mechanical mixers, do they scrape the buckets in any way?—Only with a trowel.

7865. Do they not tend to get parts of the white-lead on to their clothes and hands?—Not to any extent. I have noticed the men handling that keep very clean. If we find a man who will not keep himself very clean, there or in another department, he is warned once, and if he does not improve he is let out.

7866. Are we to understand from you that the process of manufacturing white-lead is a boxed-in process from the time that the discs of corroded lead are put in, to the time that the paste comes out?—The only time it is ever handled by human hands at all is in emptying the bucket of corroded lead from the pots into the iron or steel buckets. That is picked up by a crane and carried away. That used to be a very dangerous operation, because there was a certain amount of dust came from it; but an invention was made a few years before we started and there is a portable dust-collector attached to the box, and when the pots are emptied in there, this takes all

the dust away, so practically no dust arises from that. This bucket is picked up by a crane and taken over to the bin, and the bottom is dropped out of it (it is a bucket with a false bottom) and the lead is dropped down into a revolving screen. This is all enclosed and is dust-proof. From there it is taken away by a conveyor over to the mill. Then it comes up four floors in the separating-room, all in dust-proof conveyors, and it starts then the process of being screened and rolled and crushed. When it is of sufficient fineness to go through the fine screen, it goes into large steel hoppers, and these also are dust-proof. It is then conveyed from there by a worm conveyor to the drag-boxes, where it is discharged under water. After it is wet there, the process is all open, and it is not handled at all.

7867. It is screened with the oil in a wet state?—Yes. It is not dried before being ground into oil. After going into the rake-tubs, it goes through a very intricate process of washing and grinding, to get the acids and impurities out of it, and is ground to a very fluffy fineness. Then it goes to the settling tubs; then to the other room, where it is wet; then out to the pulpers, where the oil is added while still in a wet state. The moisture is then eliminated, and the lead and oil drawn out of the bottom of the pulper.

7868. How many of the 370 employees are actually engaged in the work of manufacturing the white-lead?—It varies to some extent, from 70 to 100.

7869. So there will be 300 men engaged in the manufacture of paints?—That number, 370, includes the staff and salaried people as well.

7870. How many employees would be associated with the administrative work?—I could not say off-hand. There are the warehouse employees—about 100—in that and the shipping department, and I should say about 75 in the office and factory staffs. There are a good many men who might possibly go from one place to another. For instance, if there is a rush in the paint department, some men may be drawn temporarily from another department; and the same with the warehouse and the shipping departments. They work round the different departments, although the men in the lead mill and corroding shops are as a rule kept there all the time. They vary work from one to the other, but after they have become familiar with certain operations we keep them as close as possible to those.

7871. Have you had any experience in England?—No, but I have read the English rules, although it was some years ago. It was when we were first manning the works here.

7872. Have you made it your duty to apply the rules as laid down in English factories, under the English Factories Act, in connection with your process here?—No. As I said before, we very largely followed the rules in use in America.

7873. You have followed the American precedent rather than the British?—Yes, experience in the works I was familiar with in America was so good that I did not see any use of going beyond those.

7874. Where were those works situated?—In Chicago—very large works. The Sherwin Williams Co., my former employers, were associated with us when we started here. They have been running over there about 15 years now, and have had remarkable records so far as any ill-health amongst their employees is concerned.

7875. That is, there has been a remarkable absence of illness?—Yes.

7876. What would be the effect of the substitution of zinc-white for white-lead in the manufacture of paints here?—I do not think it can be done. That is, we could not make paints out of a zinc-white which would answer all purposes. From my knowledge it would be a physical impossibility.

7877. That is, there is no substitute for white-lead known to you, as a manufacturer of paints?—No.

7878. And your opinion is that zinc-white cannot be wholly substituted for white-lead?—No, I do not consider it is possible. I might explain that we have had access to all the researches which have been made by the Sherwin Williams Company in America, which is the largest concern in the world with regard to paints and varnish. They keep a large staff for research work, and have been for years experimenting on the different pigments which have been brought forward. They have very large zinc smelters, refineries, &c.; they have also a large lithopone plant, and they are not more interested in one plant than another. All their researches have tended to prove that white-lead is the only pigment that can be used as a base, for general purposes, with which to make a first-class oil paint.

7879. Have they published any matter giving the result of their researches?—No, not publicly.

7880. This is confidential information which you have in consequence of your past association with them?—Yes. A great deal of it is personal. Our works' manager was formerly manager of one of the big departments in the Sherwin Williams Company, and has a personal knowledge of the experiments which have been made over there. Unfortunately, he is away in England just now, or I would have been very glad to have had him testify before the Board.

7881. Have you a formal health report prepared every year in connection with your manufacturing work?—No.

7882. There are no health statistics to which we can refer?—I can produce the men's cards—.

7883. They have not been worked up in any way?—No. As I said before, the majority of the men have been there ever since the lead works were started, and the percentage of illness has been so small we have not attempted to tabulate it.

7884. Are your men insured by one of the local companies?—Yes.

7885. Are you charged a special rate in respect of the men in the corroding section of the works?—No.

7886. Are you charged a special rate at all?—I cannot give you the figures as to the rate, but all our employees are under the one rate. We pay at the end of the year on the average amount of wages paid out.

7887. What are your men classified as for insurance purposes?—I cannot answer from memory; I can get the information if you desire it.

7888. I see that there is a class called "paint manufacturers," and that it is rated at 12s. That is 12 per cent. of wages, is it?—I am really not familiar with that question. We have one man who attends to the whole of the insurance. I did not know you would be interested in that. However, I can obtain for you the full information if you so desire.

7889. "Lead works"—will you come under that classification?—I really cannot say. I know we make up a return at the end of the year and pay on that return, but I am not familiar with the facts.

7890. I see "lead works" are rated at 22-6 per cent. ?—I do not know whether that would apply to us, or to men working in sheet-lead.

7891. Iron foundries are rated at the same figure?—I shall be glad to get you the information.

7892. We would be glad to have it from you. You do not manufacture a zinc in any form?—No.

7893. Has there been a tendency on your part, as a paint manufacturer, to reduce the proportion of white-lead used in the manufacture of paints?—No,

we use approximately the same proportions. In fact, I believe the proportion of lead has been very slightly increased in the last few years through experiments we have made since we have been out here. There is a slightly higher proportion of lead than the paint used to carry.

7894. You use zinc-white largely in the manufacture of paints ?—Yes.

7895. What is your consumption of zinc-white ?—I could not say from memory. In our higher grades we use approximately 40 per cent. of zinc-white to 60 per cent. of lead, which we recommend for a finishing paint for out-door or in-door use.

7896. That is, 60 per cent. and 40 per cent. of the dry matter ?—Yes.

7897. What is your consumption of white-lead per annum on your own manufactures ?—I cannot give you that from memory, but I should say we use approximately $12\frac{1}{2}$ per cent. to 15 per cent. of our output in the manufacture of paints. It varies owing to the demand for paint, as against white-lead.

7898. Do you manufacture a paint on a zinc-white base or on a baryta-white base ?—No.

7899. Then we may take it that carbonate of lead is the principal base ?—It is the base of the higher-grade paints. Of course we make cheap paints, ready-mixed paints, sold in 1-lb. or 2-lb. tins, but that is only for the cheaper grades. All our higher-grade paints are made with a carbonate of lead base.

7900. Is there a considerable consumption of lead in the form of sulphate ?—I would not say it was considerable, as compared with the carbonate. There is a certain amount of sulphate in it. We use some in the cheaper paints, such as car paints, &c.; we use a certain proportion of sulphate of lead in those on account of the cheapness.

7901. Is the manufacturer at all responsible for the persistence of the practice of rubbing down green paint surfaces ? That is, could care on the part of the manufacturer of paints make the rubbing-down processes unnecessary ?—I do not see how it is possible.

7902. For instance, the rubbing down of green paint is for the purpose of removing the nibs, we have learned ?—Yes.

7903. Do the nibs indicate carelessness in manufacture at all ?—No. I think you can see that by taking a clean brush and a perfectly clean surface you would not get these nibs then. The nibs are caused by dirt in the brush or the atmosphere. The high-grade paints are strained very, very fine: they are put through very fine gauze, which takes practically all of the sediment, if there is any, out of the paint. It is the same with white-lead. It goes through a $\frac{1}{80}$ mesh, silk gauze, and that takes practically everything out. It must be very fine to get through that mesh.

7904. So that sufficient care with the brushes ought to enable the operators to dispense with the practice of rubbing down ?—No, not always, because there is a certain amount of dirt on the surface. Even if they dust the surface before applying the paint there is a certain amount of dust left on the surface, which works up on to the brush. You will understand I am not a practical painter, but that is my idea from long experience and observation.

7905. What is the effective life of a film of well-manufactured paint ?—It varies largely. I can show you panels which have been on for five years, and they still have a fair film; still that same paint used on the same surface, and not put on as carefully, would probably have broken down in three years.

7906. What is the process of breaking down ?—When the oil oxidises it leaves a pigment standing on the surface, and that is what causes the chalk. It is the oxidation of the oil that allows the pigment to chalk off.

7907. Is not there a chemical change caused by the mixing of the oil and the carbonate of lead? Does not the carbonate affect its character to some extent?—I am not a chemist, and cannot say; but my idea is that there is no chemical change.

7908. Your idea is that with the distribution of the oil the powdered carbonate is left on the painted surface?—Yes.

7909. Much in the form in which it was originally prepared?—Yes.

7910. Does your firm employ chemists who can give information under such headings?—I think he can, yes. Our principal man—the head chemist and works manager—is away, as I have said; but his assistant is there, and would be available if the Board cared to examine him.

7911. Have you any objection to your doctor attending before the Board?—No, we would be glad to have him attend.

7912. Will you arrange for him to be present at some future date, when the Board is sitting?—Yes.

Cross-examined by Mr. CONNINGTON.

7913. Your evidence is confined exclusively to the operations of manufacture and distribution?—Yes.

7914. I think it is generally admitted the great danger in the use of white-lead in paint is, as far as the painter has to use it?—I would not be prepared to admit that. It seems to me if a man can work in it for eight hours a day on six days a week——

7915. But is it not considered the unhealthy section—that part of the work done by the painters?—I cannot see why.

7916. But is it not generally conceded?—No, I would not admit that.

7917. Do you admit generally that any figures dealing with lead-poisoning show a greater percentage of painters than of other classes?—Yes, I believe it is so.

7918. You will correct me if I am wrong, but my impression is all these investigations as to the danger of using white-lead are usually centred upon the work of the painter?—Yes, I believe that is so, of recent years. Of course, several years ago there was quite an agitation in the Old Country as to lead works——

7919. But it has recently centred around the work of the painter?—I think you are correct.

7920. It is never disputed the most dangerous part of the painters' work is that known as rubbing down?—Yes, I think so.

7921. The rubbing down is sometimes done before he commences on an old or a new surface, and between coats?—That is true.

7922. It is regarded as being a substantial part of the painters' operations?—I think that is so, by most of the trade.

7923. I am quoting now remarks attributed to one of your managers in England?—

7924. Mr. MANNING: I wish Mr. Connington would not say things like that; it is very reprehensible.

7925. Mr. CONNINGTON: I say that I am quoting remarks of one of the managers in the British——

7926. Mr. MANNING: Can that be cut out of the notes?—It places an intolerable burden upon me?

7927. DEPUTY-PRESIDENT: The more we extend the notes, Mr. Connington, the more onerous becomes the inquiry. We ought to keep strictly to what is absolutely essential to our purpose, and your purpose at present is to ask questions. If you want to find out whether the witness disagrees with someone else who has expressed an opinion, ask him that question.

7928. Mr. CONNINGTON : Do you know a Mr. Angus R. Walbrook ?—Yes, I know him.

7929. He was, and may be now, connected with your firm ?—A few years ago he was in a sales position. I cannot say exactly when he left, but he was sales' manager in London.

7930. He has delivered several lectures, has he not, on the use of lead in paints ?—I cannot say.

7931. Had he a long association with the firm ?—I cannot tell you that.

7932. When did he leave the firm ?—I cannot tell you. The English company is run entirely separate from ours, and we have nothing to do with their employees, nor have they with ours.

7933. Referring to rubbing down, do you disagree with this : " The fine dust which is thrown off from lead paints so rubbed is very poisonous " ?—I think it would depend altogether on what it was you were rubbing down. If it was lead paint and the man was not careful, it might be dangerous.

7934. However, you admit he might inhale it ?—If he inhales lead he is going to get lead poisoning.

7935. Have you, yourself, given any study to the question of Lithopones *versus* lead paints ?—No, not *versus* lead paints. We use Lithopone in a large way, in some of our paints.

7936. DEPUTY-PRESIDENT : What do you understand as Lithopone ?—I am not a chemist, so cannot give you the technical term for it, but I know it as a sublimation process of barium ore and zinc. I have seen it made.

7937. Mr. CONNINGTON : It is usually a mixture of zinc oxide and barytes ?—Yes.

7938. DEPUTY-PRESIDENT : There is a different view in England, apparently. One responsible witness at the English inquiry said it was a composition of zinc-oxide and zinc-sulphate. It might be anything.

7939. Mr. CONNINGTON : Both would be regarded by the ordinary painter as non-poisonous material. Barytes, I understand, is a form of wash.

7940. DEPUTY-PRESIDENT : You might leave that to the witness.

7941. WITNESS : I have no chemical information, and cannot explain the constituents.

7942. Mr. CONNINGTON : However, we may readily take it as a mixture of oxide and barytes ?—Not zinc-oxide. I know it is made from zinc ores and barium.

7943. Would you agree with this that Lithopone, as compared with white-lead, is much lighter in gravity and retains its whiteness longer ?—No. It is lighter in gravity, but would not retain its whiteness longer. Our experience is that it does not.

7944. It takes 50 per cent. more oil ? You will agree with that ?—I cannot without going into it.

7945. Have you gone into the question as a chemist would ?—No, I am not a chemist at all.

7946. It covers one third more surface, the made-up article ?—I would not agree with that.

7947. Have you ever made any experiments at all to test its efficiency from the standpoint of spreading capacity ?—Not personally. We know when it is got up into a flat paint it covers pretty well.

7948. Do you think it obliterates better than lead ?—No.

7949. Do you think it is cheaper ?—No, I do not—not in Australia, anyway.

7950. Do you think it gives purer tints ?—No, I do not think it does.

7951. Do you think it works more freely ?—I cannot say as to that.

7952. I suppose you have not experimented as you say you have with lead——?—I have never experimented with Lithopone as a paint by itself.

7953. Would you agree or disagree with this statement: "Lithopone is more opaque, it obliterates better than white-lead, therefore, for covering up old discoloured white or pale tints, it is more effective, and two coats may serve where three of lead might have to be used"?—No, I would not agree with that.

7954. With regard to Matone, that is a manufacture of your firm, is it not?—Yes.

7955. Is it a leadless paint?—It is.

7956. Have you experimented with that?—Oh, yes; we use that quite a deal.

7957. As a substitute for paint for inside work?—We consider it very good.

7958. As good as paint, for inside work?—For walls and ceilings.

7959. And you can apply it to the woodwork?—Yes, but not as satisfactorily as for wall work.

7960. Is it as satisfactory as lead paint would be, with the addition of a little varnish?—I could not reply to the question, because I have not tried it personally.

7961. Take Lithopone, used outside with a little, or some varnish added, would it be as lasting as paint?—In my opinion, no.

7962. Have you ever heard it stated that it would be?—No.

7963. You think it is not so?—I think it is not.

7964. It would not stand the weather as well as a lead paint?—It will chalk off quicker, and will not hold its colour.

7965. DEPUTY-PRESIDENT: Is there not lead in varnish?—No. There is a little red-lead used but it is such a very small percentage that it is not an appreciable percentage.

7966. Do you manufacture the leadless paints at your works?—We make a water paint.

7967. That water paint is a colour?—Yes; really a kalsomine.

7968. MR. CONNINGTON: But Lithopone and Matone are really paints?—Yes.

7969. Do you manufacture any leadless paints outside of those?—Not that I know of at the present moment.

7970. There may be some?—I would not say positively. We make zinc white in oil, which we call a leadless paint. Of course, it is different in its stiff form.

7971. That is what professional painters call a proprietary line?—Yes.

7972. What do you call that?—Zinc and oil, I believe. I have not got my catalogue with me. I am a bit hazy on some names. It is paint in oil ground in a stiff form.

7973. Do you recommend it for outside use?—In mixture with lead.

7974. Does your advertisement say, "When mixed with lead"?—It is sold to professional painters to use in any way they want it.

7975. You sell it as a paint?—Yes, zinc white in oil.

7976. Do you not call it some paint?—I do not remember.

7977. That is not your special department?—No.

7978. I presume you have a catalogue showing your manufactures?—Yes.

7979. Can we have one of them?—Yes, I will get one for you.

7980. That would pretty well indicate how you regard . . .?—These painters' lines are really put up for the convenience of painters, and they, as a rule, know how to use them. In stiff paints there is seldom any direction

given on the package. It is simply labelled for what it is, and the painter uses it as he desires.

7981. Are not those paints put up in 2, 4, and 6 lb. tins?—Yes, I think so.

7982. Is it not purchasable at Anthony Horderns, Groths, and other places?—If they did not get ours they would get someone else's.

7983. But a man can buy a leadless paint?—He can buy a zinc-white in oil.

7984. Suppose I went in for a leadless paint?—I do not think anyone would give you zinc-white, if you asked for that, because it is not used as a paint; it is used in connection with other pigments to make a paint.

7985. You will let us look at your catalogue?—Certainly.

7986. You cannot say when Mr. Walbrook severed his connection with your English firm?—No.

7987. Can you find out?—No, I cannot.

7988. This is the "Journal of Decorative Art and British Decorator." Is it an official paper?—I cannot say, as I am not familiar with the British journals. I see some occasionally, but cannot speak as to their standing.

7989. With regard to your employees, you have been in business for three years?—We have been manufacturing for nearly three years.

7990. At Rhodes?—Yes.

7991. You have about 400 employees altogether, including the staff?—Yes.

7992. Have you a record of the ages of the employees?—Yes. Their ages are taken, with their addresses, when the men are employed.

7993. Whether they are juniors or adults?—Yes.

7994. Can we get a copy of that record?—

7995. DEPUTY-PRESIDENT: In what form is it kept?—If the firm has to bring its books here it will be tedious for us and not convenient for the firm.

7996. Mr. CONNINGTON: I do not want to do anything that is troublesome.

7997. I suppose there would be quite a large number of juniors employed?—A certain percentage, but I could not say how many.

7998. As to the age of the adults, are they young men?—Of all ages, I should think. I know there are some fairly aged men there, and that the new company would not employ a great number of really old men only. I should say the majority of them are middle-aged men.

7999. That is, of the usual ages we find in factories?—That is so.

8000. With regard to your precautions, you have the hot water baths and the others?—Yes.

8001. And your instructions to the men are to wash regularly in the baths available?—Yes, in the lead works.

8002. Do you supply them with any soaps?—Yes.

8003. With any disinfectant soap?—No, I think it is the ordinary Siren soap.

8004. Do you give them time to cleanse themselves properly?—Yes.

8005. DEPUTY-PRESIDENT: I suppose one single part of your staff deals with the arranging of insurance and the acceptance of rates, &c.?—Yes.

8006. Will you either ascertain from that gentleman himself exactly what rates are paid and what classification is given to your employees by the insurance companies, or will you make him available to the Board? We would be content to take the information from you?—I will furnish it one way or the other as soon as I can.

8007. Mr. MANNING: I have not had an opportunity to study this journal on which you were cross-examined, but I will ask you do you assent to a proposition of this kind? "It is generally conceded, I think, by experts, that white-lead possesses some valuable characteristics when used in conjunction with linseed oil, which no other pigment possesses."—I do.

8008. "This is what might be described as a process of combining with the oil, or feeding upon it, setting up a process of saponification by which a new compound is formed. It is generally agreed that this compound forms a better protective coating than any other one pigment forms when combined with linseed oil." Do you assent to that?—That is going into the chemical question, which I cannot answer.

8009. You were not asked that question?—No.

8010. Mr. CONNINGTON: I will supply members of the Board and Mr. Manning with copies of the article in full. It is an article by Mr. Angus R. Walbrook, of Messrs. Lewis Berger and Sons. The title is "The Journal of Decorative Art and British Decorator," of March, 1913, and I was asking the witness a few questions on page 93. The article is headed "Prepared and Leadless Paints."

8011. DEPUTY-PRESIDENT: You need not put the journal in as an exhibit; just leave it somewhere where the Board can refer to it.

8012. Mr. MANNING: The position now is that there are a number of medical experts whom we wish to call. They have been away from Sydney and were not back until this morning. There is a rather large mass of stuff to go into, because evidence has been given by a number of people who are interested in various ways in the paint industry. There are the operative painters who say they are affected in a certain way by lead-poisoning. What we desire to do is to put some expert medical evidence before the Board, dealing with the particular cases. I do not mean each individual case, but rather classifying the symptoms and dealing with them as symptoms, showing what, in the opinion of these medical experts, the symptoms indicate; then to go on further and deal with the matter as scientifically as we possibly can. Of course, it will need a little preparation.

8013. DEPUTY-PRESIDENT: The inquiry is essentially a scientific inquiry. If it is to be effective it must be carried out in a more or less scientific way.

8014. Mr. MANNING: Yes. Then there are those figures contained in the documents which Mr. Sawkins produced. I remember, sir, that you asked one or two questions of other witnesses on those. I think that this is what you were putting to them, if I may say so—of course, I am merely asking this more for information now—that for every person in the community who dies of lead-poisoning, eight painters die.

8015. DEPUTY-PRESIDENT: The question that I asked was not intended to suggest that lead was responsible. I think I put the question, more or less in this form, to each of the witnesses: Would it not be deplorable or do you not regard it as a deplorable state of things that painters should die from those causes with such frequency.

8016. Mr. MANNING: Yes. The only thing that upset me at the time, if I may say so, when you asked the question, was that I thought it was rather a staggering way to put it. I looked at it as a matter of statistics. I was not concerned with the suggestion that lead-poisoning was doing things which it ought not to do.

8017. DEPUTY-PRESIDENT: I do not mind making this admission: that I put it in such a way as to attract the attention both of yourself and Mr. Connington. The Board wants all the help it can get in handling a very difficult position as indicated by the statistical computations that have been made.

8018. Mr. MANNING: Yes. When the question was put to the witnesses in that cryptic fashion it certainly forced itself upon my attention. I asked you at the time whether it had been formed on Mr. Sawkins' evidence, and I looked at the question afterwards on his evidence. What struck me was that if it had been put in the way Mr. Sawkins tabulates it, it would be all

right. He was dealing with the number of deaths per 1,000. I think that the witnesses thought, when you put the question to them, that this fact was intended to be brought before their minds, that for every person who dies of lead-poisoning in the community, eight painters die of lead-poisoning. What Mr. Sawkins says in his figures is that for every one per 1,000 of the rest of the community who dies, ten per 1,000 of the painters die.

8019. DEPUTY-PRESIDENT: I have the questions that I put to Mr. Grice. They were:—"Statistics with regard to the State of New South Wales seem to show that out of every 1,000 deaths of painters sixteen are caused by lead-poisoning."

8020. Mr. MANNING: That is all right.

8021. DEPUTY-PRESIDENT: And "that of every 1,000 deaths in other occupations only 4 is caused by the same lead-poisoning."

8022. Mr. MANNING: There is not the slightest objection to that. That is put exactly as Mr. Sawkins put it.

8023. DEPUTY-PRESIDENT: And I went on to say: "They seem to show further that out of every 1,000 deaths of painters 152 are caused by Bright's disease."

8024. Mr. MANNING: That is quite correct.

8025. DEPUTY-PRESIDENT: I do not want you to think that I have concluded my mind on the matter.

8026. Mr. MANNING: Quite so. If they are all prefaced by that statement "per thousand" it is all right, because it is a rate then. So long as it is connected as a rate, I do not mind.

8027. DEPUTY-PRESIDENT: I do not think I have made any mistake on that score.

8028. Mr. MANNING: If there has been a mistake we can deal with it afterwards. I just mention it now because that is one of the things that I wanted to see Mr. Sawkins about. If it is connected as a rate it is all right; I will not bother about it.

8029. DEPUTY-PRESIDENT: As a matter of fact, it is a rate of frequency, which is very different in its terms from a death-rate. A death-rate is a rate affecting a community of living people; a frequency-rate is a rate affecting the number of deaths.

8030. Mr. MANNING: Yes. Of course; if it is per 1,000, then that is a different matter altogether.

8031. DEPUTY-PRESIDENT: If it is per 1,000 of living painters, of course it is a very different thing. I did not want to make that suggestion.

8032. Mr. MANNING: Quite so. Perhaps I did not follow the question properly at the time, but it occurred to me then that there were so many hundreds of thousands of other employees engaged in occupations that it could only be taken as a rate.

8033. DEPUTY-PRESIDENT: It would be quite impossible otherwise. That would really mean that if there are sixteen deaths per 1,000 in the case of painters (we may assume that there are 4,000 painters in New South Wales) sixty-four painters die per annum from lead-poisoning. As a matter of fact, in England, with 150,000 painters, they only have thirty deaths per annum.

8034. Mr. MANNING: Another thing is that Mr. Sawkins also shows in his figures that the total deaths there per 1,000 during the last five years was was somewhere about five.

8035. DEPUTY-PRESIDENT: One has to be extremely careful in handling statistical deductions. They are likely to lead one astray otherwise. I have no hesitation in saying that I shall be glad to be corrected at any time, if you think I am mis-stating the effect of statistics in remarks that I may make.

8036. MR. MANNING : I am much obliged to you. It was on those statistics that I wanted to get some expert medical testimony. I have handed those statistics to some of the medical experts. Dr. Chapman is looking into them, but he went away on Friday and I have not seen him since. I suggest that, perhaps, we might adjourn now until Wednesday morning, because there is such a lot of work to be done outside that which is actually done here. I know I can easily put in the time with some preparatory work, and, perhaps, it will be of assistance also to the Board.

8037. DEPUTY-PRESIDENT : The Board is generally in agreement with you. The inquiry is already becoming heavy; the record itself is voluminous, and the Board will profit by some slight delay at this particular time. The Board is prepared this afternoon to make an inspection of the Berger works, and it will assent to your proposal, if Mr. Connington has no objection.

8038. MR. MANNING : I have already mentioned the matter to Mr. Connington, and he——

8039. MR. CONNINGTON : I have no objection. I am entirely in the hands of the Board.

8040. DEPUTY-PRESIDENT : Very well; we will adjourn until 10 o'clock on Wednesday next.

(At 11.40 a.m. the further hearing was adjourned until 10 a.m. on Wednesday, 20th July.)

THIRTEENTH SITTING.

WEDNESDAY, 20 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, Sydney, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

MR. SHERWOOD (Messrs. Norton, Smith and Co.). I regret to have to inform the Board that Mr. Manning has contracted influenza and is unable to attend, and I would ask the Board to grant an adjournment until Monday next.

DEPUTY-PRESIDENT : The Board much regrets to hear that Mr. Manning is unable to attend, and unless Mr. Connington has any objection to the adjournment, the Board will adjourn accordingly.

MR. CONNINGTON : I am entirely in the hands of the Board.

DEPUTY-PRESIDENT : Then the Board will, owing to the illness of Mr. Manning, adjourn until 10 a.m. on Monday next.

(At 10.5 a.m. the further hearing was adjourned until 10 a.m. on Monday, 25th July.)

FOURTEENTH SITTING.

MONDAY, 25 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

ARCHIBALD HENRY HAMPTON, sworn, examined by Mr. Manning:—

8041. DEPUTY-PRESIDENT: What is your position?—I am Works' Manager of the Mascot Smelting Works.

8042. What is your address?—"Lochline," Macintosh-street, Mascot.

8043. How long have you been in the position of Works' Manager?—Three years.

8044. What is the nature of your company's business?—The manufacture of zinc-oxide.

8045. Will you give us an idea of the character of the company's business? That is, from what ore, or other sources, it manufactures the zinc-oxide?—We manufacture directly from hard zinc or ordinary zinc from Broken Hill or Tasmania.

8046. Is that what is commonly known in the trade as spelter?—The ore so far in Australia is of no use for the manufacture of zinc-white straight out. In other countries they have it more suited for manufacturing direct from it. It is totally unsuited here to manufacture direct from the ore.

8047. From what source do you buy your raw materials?—From Broken Hill, and from the Tasmanian Electrolytic Company.

8048. In what form do you buy the raw material?—Ingot form.

8049. Is the ingot different in some way from the rest of the zinc manufactured by Australian producers?—No, they all manufacture in ingot form.

8050. I am a little at a loss to understand your first statement that zinc spelter does not lend itself to the direct manufacture of zinc-oxide?—No, I said Australian ores did not lend themselves to the manufacture direct.

8051. So the manufacture of zinc-oxide must be from zinc in the form of spelter?—Yes, in Australia at present, unless we learn different.

8052. You mean in a highly refined form?—Yes.

8053. Are you confined, then, to your purchases of supplies to the two sources you have mentioned?—Yes, we are at present.

8054. There is no trade with Australia from other countries, with zinc?—Oh, yes, we can import it if we want to.

8055. From what sources?—From America, England, Belgium, Japan—anywhere. In fact, we can land it here to-day just as cheaply as we can buy it in Australia, if it were necessary to do so, but while we can get it here we will do so.

8056. Is there a free over-seas market on zinc?—No, there is a duty, but notwithstanding that they can meet the price here just the same.

8057. Is the amount of zinc available abroad practically unlimited?—I believe it is.

8058. You would anticipate no difficulty in obtaining zinc if your local sources of supply were cut off here?—No, I think we could get anything from 300,000 tons to 500,000 tons a year from Japan alone.

8059. Will you give us some idea of the process of producing the oxide used at your works ?—The zinc-oxide is merely a battaliation of the zinc, and condensation.

8060. That is, it is a process of distilling ?—Some distillation.

8061. Is it an expensive or a costly process ?—Well, it is very costly.

8062. Costly in respect of plant, or labour ?—The depreciation of the plant is one great thing—

8063. Is the original cost of the plant great ?—Yes, it costs a fair bit.

8064. And the wastage in plant is very considerable ?—Yes.

8065. What do you regard as the rate of depreciation in plant, in percentage ?—We regard it as 20 per cent. depreciation in our plants.

8066. So an installation would last for a matter of five years only ?—Yes.

8067. Are your expenses for maintenance and repairs high ?—No, they are not too great.

8068. I understand you to say you produce your zinc-oxide solely from Australian ores at the present time, or from Australian zinc ?—From Australian zinc, or spelter, which ever you call it.

8069. How long has your company been at work ?—Three years.

8070. Has the output increased very greatly in that period ?—Yes, it is very nearly three times the output we started on.

8071. What was your estimated output at the beginning—I do not know about the years, but we estimated our output to start with at 10 tons per week, but it is nearly up to 30 tons now.

8072. Is that increase in output due to increase in demand for the commodity ?—Yes, to an increase in demand.

8073. To what uses is the commodity put ?—Paint purposes and rubber purposes are the two general uses. The rubber people use an enormous amount of filling. It is the sole body of rubber. Of course it is used chemically; toilet powders, and many things it is used for.

8074. What proportion of the product is consumed in paints ?—I should say 90 per cent. of it is consumed in paints at the present time.

8075. And the rubber trades and cosmetic and other trades account for only ten per cent. of the product ?—That is so.

8076. Have you made yourself familiar with the attitude of the paint trade to the use of zinc as a paint body ?—Oh, yes, we experiment the whole time, we have found, wherever we have got in with the zinc, they never go back on it in regard to paints.

8077. Do you say you are conducting experiments of importance to painters at your works continuously ?—Yes. We are open to give a practical demonstration in regard to zinc at any time. The trouble in the past has been due to the inexperience of painters of how to use it. That is the sole trouble.

8078. Do you grind your zinc in oil ?—Yes, we have had to do so.

8079. Suitable for the use of painters ?—Yes.

8080. And you experiment with the product as so combined ?—Yes.

8081. Do you manufacture paints on the basis of that product ?—No, not mixed paints, not so far: only in the concentrated form of zinc.

8082. So that your experiments would be equivalent to experiments which might be made in the covering and lasting qualities of white-lead in its concentrated form ?—Exactly.

8083. Do you compare the zinc with the lead in the course of your experimenting ?—Yes. I say now that zinc will cover a greater area, used thoroughly and properly.

8081. And what about its obliterating power ?—It will act up to anything else.

8085. That is, it is equivalent to the obliterating power of any other medium ?—Yes. I have a letter here if you care to read it, on that particular subject. I have not seen this gentleman since. I gave him a practical demonstration, and this is the result. He can be called by the Board.

8086. You tender a letter from Simpson and Stilton, painters, decorators and general contractors, of 7 Olive-street, Paddington ?—Yes. I may say this gentleman was totally antagonistic towards zinc before we got him to use it.

8087. MR. MANNING : I think if there is anything turning on what this gentleman thinks, he should be called so that we can cross-examine him as to what he really does think.

8088. DEPUTY-PRESIDENT : Yes. I do not want to take evidence indirectly in the matter. I have not read the letter yet; you and Mr. Connington might read it first.

8089. WITNESS : I would like to call that gentleman.

8090. DEPUTY-PRESIDENT : You say you would like to call him ?—Yes, I would.

8091. MR. MANNING : I have no objection to the letter being used in any way; I was only making the suggestion that perhaps it would be as well if the gentleman were called at some time or other.

8092. DEPUTY-PRESIDENT : We will have the letter read on the understanding this man is to be called.

8093. MR. CONNINGTON : It might be found after you hear the evidence of the manufacturers in the "L" section and "Z" section that other evidence may be unnecessary. I suggest that this and similar evidence should stand over until a later stage in the inquiry. We may afterwards have to hear evidence from every one who recognises or condemns a particular class of paint.

8094. MR. MANNING : I think that is a very good suggestion.

8095. MR. CONNINGTON : The Board might feel after it hears other evidence from the zinc section and what is to be said by principal persons engaged in the lead trade, it will be unnecessary—

8096. DEPUTY-PRESIDENT : Of course, we do not want to prolong the inquiry.

8097. MR. CONNINGTON : There may be a number of persons writing letters saying they have tried zinc and that lead is preferable as to durability, and so forth. We might get letters from other persons recommending zinc, and the inquiry would go on interminably. I suggest the question of dealing with this matter stand over till a subsequent stage of the inquiry.

8098. MR. MANNING : What appeals to me is the phraseology of the letter. I am so familiar with the phraseology that I know exactly where it originates.

8099. DEPUTY-PRESIDENT : It is always possible for us to call the persons who may have views with regard to the suitability of zinc as a paint basis.

8100. DEPUTY-PRESIDENT : You have received the same letters from customers?—Yes, I have several of them, so far as painters are concerned. I do not want to put the letters in, but put that in so that you can call the witness.

8101. You have letters from persons who have different experience of lead as a zinc basis even converted from your association with lead?—Yes, that is the position right down.

8102. Do you supply your product otherwise than the form of zinc oil itself?—We supply it dry or in the oil concentrates.

8103. You supply both dry and in the form of a paste?—Yes.

8104. Do you supply it to other paint manufacturers?—Yes, practically to all the paint manufacturers of New South Wales.

8105. Is your company the only company producing zinc-white or zinc-oxide in New South Wales?—No, Lysaght Bros. produce zinc-oxide in New South Wales, at Parramatta River.

8106. Is zinc-oxide produced in the other States of Australia, as well as in New South Wales?—It is produced in Hobart at the Electrolytic Company's place, but I do not know any other place where it is produced in Australia at the present time.

8107. Have you got books which show that an experiment was instituted at a certain time, and what effect it produced?—No.

8108. They were informal experiments only?—Yes.

8109. Intended to satisfy your own mind?—Yes, to satisfy our own curiosity.

8110. With what white-lead did you compare the covering properties of zinc-white?—General Australian white-lead; that is, we are corrodors of white-lead. Of course, we only manufacture in Australia, and do not want to compare it against the Home article, although we can do so.

8111. Your experiments have been designed to compare it with white lead produced in England or abroad?—No.

8112. What would, in your mind, be the effect of a general prohibition of the use of white-lead?—That question I cannot answer. I am not versed in white-lead and have nothing to do with it, in practical knowledge.

8113. But you are versed in zinc-oxide?—I am not a practical man with regard to white-lead, and therefore cannot answer any question as to the prohibition of white-lead or the real general use of it. I have not had any general experience, and I am not going to commit myself upon that subject.

8114. You do not want to answer any question pertaining to the propriety of the general prohibition of white lead, but that was not my purpose in putting the question to you. What I want to know is what would be the effect upon your trade of the general prohibition of white-lead; can you meet the demand for zinc-white if there were a prohibition?—Yes, if we were given time.

8115. What time would you need to equip yourselves to meet the demand for zinc as a paint basis if the use of white-lead were prohibited?—We would want two or three years anyhow.

8116. How much zinc-white can you produce in addition to what you are already producing, in the period of 6 months from now?—Oh, double the quantity.

8117. You can double your output?—Yes, in 6 months.

8118. That is, from 30 tons to 60 tons, in 6 months' time? Yes, it takes about 6 months to get a plant erected and in working order.

8119. Have you any idea of the amount of zinc-oxide which would be called for if the use of white-lead were prohibited?—No, I have not.

8120. Can zinc-oxide in a paste, or dry, be imported readily from abroad?—Yes, but there is a heavy duty on it at present.

8121. What is the percentage of duty on zinc-oxide?—It is 20 per cent. duty.

8122. Has your company laid plans for the provision of zinc-oxide as a substitute for lead, in the event of the use of white-lead being prohibited?—No, I cannot say we have laid plans exactly.

8123. Have you made estimates as to what would be required of your company in such an event?—Yes, we have, as a matter of fact.

8124. Can you give us the general effect of those estimates?—No, I cannot, not right here.

8125. Mr. MANNING : On the question of supplies, I understand that your supplies would be adequate in the course of three years in the event of prohibition of white-lead?—Yes, there is another firm as well as ourselves in New South Wales.

8126. I take you as representing the industry in New South Wales for the moment, and I take it you mean the supplies for the whole industry in New South Wales would be normal in about 3 years' time?—Yes.

8127. I also understand you to say at the present time the foreign supplies can be obtained about as cheaply as the local supplies but you prefer the local ones?—Yes. I said "raw material."

8128. The raw material from which you manufacture your zinc-oxide?—Yes.

8129. Can they both be supplied at practically the same figure—both the local articles and the imported article?—Yes.

8130. Is that after allowing for duty as well?—Yes.

8131. Are you familiar with the workings of the Barrier Mine?—No, I am not too familiar with it.

8132. Do you know that the ore is a complicated ore?—Yes.

8133. You know it contains lead or zinc?—Yes. I stated a little while ago the ore here was not used for the direct process of manufacture of zinc-oxide.

8134. You know that the ore there is a somewhat complicated ore?—Yes.

8135. And that it contains lead and zinc?—Yes, and silver.

8136. I suppose it occurs to you, does it not, for the economic running of that mine, the two metals have to be put on the market?—Yes.

8137. And your turnover is about trebled, you say, in about 3 years?—Yes.

8138. Is that the average of the year?—Yes.

8139. So that your first year's average was trebled at the end of the third year?—Yes, exactly.

8140. We may take it that before you started operations your zinc substitute was not on the market at all?—Yes, there was a fair body of it. I have been in the game 20 years.

8141. I mean, substitution in competition with lead?—No, certainly not.

8142. So you have really, in the 3 years, practically built up the zinc-oxide industry from practically nothing to its present dimensions?—Yes.

8143. May we take it at the present time you have recognised that the lead, the paints with the lead base, outweigh the paints with the zinc base. The volume of trade done in the paints with a lead base largely outweighs the volume of trade of paints with the zinc basis?—I will not say exactly that—I do not know.

8144. Will you say there are no excess paints supplied with the zinc basis?—If there is any excess the whole world over, zinc, I should think, is in excess.

8145. I am not bothering about the "whole world"—?—Well, I will say in Australia, if that will please you better.

8146. Do you not know the volume of paint on a lead basis very largely outweighs the volume of paint on a zinc basis?—I do not know it.

8147. Do you imagine that the paint on a lead basis is in excess of that on the zinc basis, in New South Wales?—Yes, I think it is in excess.

8148. That being so, have you any idea of the percentage of pig-lead from the Broken Hill mines used in the manufacture of paints?—No, I have not.

8149. Suppose you were informed that anything from 20 per cent. to 40 per cent. of the output of pig-lead from the Broken Hill mines was used in the manufacture of white-lead for paints, would you realise the restrictions of white lead would make very serious inroads into the future of the Broken Hill mines?—Quite possibly. I am not dealing with the lead question. I really would have preferred not to be here at all on that subject. Of course, I was called here, but I am not attacking the lead people or anyone else. You are hitting me there—

8150. I do not want to hit you in any way. The only way I can make the matter plain, really, is through a witness speaking from the box who knows something about both articles, but I do not wish you to assume I am in any manner hostile. I want to go back to this position about the economic factor, the competition between the Australian suppliers of raw material for zinc-oxide and the foreign suppliers of the raw material for zinc-oxide. That is what I want to ask about. You are familiar with the position at any rate?—Yes, I am familiar with that.

8151. I ask you if you realise that position, where you recognise the serious effect on the workings of the Barrier mines of the prohibition of the use of white-lead paint?—I cannot say that.

8152. You can use your imagination?—There are open markets the world over.

8153. Take the supposition I am putting to you; suppose that anything from 20 to 40 per cent. of the total output of pig-lead from the Broken Hill mines was employed in the manufacture of white-lead, and that market was suddenly taken away from the Broken Hill mines, would you recognise that would have a serious effect upon the lead industry, apart from any technical knowledge at all, but as a matter of common sense?—I do not recognise it. I do not see why the market is taken away from them at all.

8154. But I ask you to assume it is taken away?—You will pardon me for not answering that. I do not see any serious effect at all.

8155. You refuse even to suppose such a ridiculous thing?—I do not think there is any serious effect in it at all, myself.

8156. The loss of a market of 20 per cent. of your output of pig-lead—you do not see that?—No.

8157. If there are paints containing this complicated ore which they have in the Barrier Mine were prohibited from using white-lead and deprived the market of anything from 20 to 40 per cent. of the entire output of pig-lead, you do not think that would affect their price for zinc at all?—I do not think they are deprived of 20 to 40 per cent.

8158. Do you mean to say you do not know the reason you can get zinc at that price in New South Wales at the present time is that they are working lead in conjunction with it?—They are getting a pretty good price for it, anyhow.

8159. But is it not common sense?—It may be common sense on the point you are raising; I do not know.

8160. You have told me you know the ore is zinc and lead ore?—I do not know the constituents of the ore exactly.

8161. Do you mean to say you do not know they have to handle them both on the market, in quantities at the present time in order to obtain the present price for the raw material for zinc-oxide? Do you not know that?—I know they work in conjunction with the zinc and so forth, but I am not prepared to say the Australian market is the only market they have for their lead.

8162. Do you not know this, that if there is any dislocation of the present method of working the Barrier ores, it immediately creates a preference in

favour of the foreign ores from the foreign markets?—We can never afford to import foreign ores into this country. It would be impossible.

8163. You have already told me you can get the foreign raw materials for the manufacture?—Not all. Raw material in our instance is metal-zinc.

8164. Have you not said that you could get the raw materials from?—No, I would not say such a thing; I would not be so silly as to say that.

8165. What did you say you could import at the same price as you pay for the local stuff?—The zinc. Australia will never be able to import ores from any other country for years to come.

8166. You can import the zinc, then, on the same terms as you can buy it locally?—Yes.

8167. Is that so?—Yes, I would not be such a fool as to say we can get anything from 300,000 to 500,000 tons from Japan, when they buy all their ore from us.

8168. But you can get the zinc brought here at the same figure as the local zinc?—Yes, absolutely.

8169. Do you not recognise if there is any serious inroad made into the Broken Hill mining industry it will immediately create preference in favour of foreign metal?—No, I do not.

8170. If they are deprived of working this complicated ore as a dual product of the mines, and they have to make their whole profit out of zinc, do you mean to say they would not have to put up the price of zinc, and then suffer competition with foreign markets?—No, I do not see it.

8171. Very well; I will take your answer. You do not see it?—The little bit of zinc they sell in Australia, or of lead, is nothing.

8172. What are those countries you said you imported from—America, Japan, and England?—And from Belgium.

8173. And Spain?—I do not know about Spain. It mostly goes up through Belgium, all that stuff.

8174. Do they produce it in Germany?—They used to, before the war. I do not know if they have any there or not.

8175. May I ask you what experience you have had in the painting trade before you began operations in zinc-oxide, three years ago?—I did not begin operations on zinc three years ago. I have been the first producer of zinc-oxide in New South Wales, and put up the first plant ever erected here. I do not say I know too much about paint.

8176. It has practically been a habit of yours?—Yes.

8177. What have you done during the last twenty years?—Manufactured zinc pigment for the last twenty-one years. That has been my occupation.

8178. Manufacturing it and putting it on the market?—For eighteen years I was with Lysaght Brothers, and have been where I am for three years.

8179. Did Lysaght's have any competitors during those eighteen years?—No, we were sole producers.

8180. You had the whole thing to yourselves?—Yes.

8181. What was your position in Lysaght Brothers?—I was manager of that department throughout. I installed the department and designed everything myself.

8182. And as manager of the department did you employ travellers to make this stuff known?—No.

8183. Were travellers employed there?—No, they were not employed through the firm itself.

8184. Did the firm have a publicity department by which they circularised the various painters, and so on?—They generally did their business by

circularising the painters and the rubber people—the paint people and the rubber people.

8184A. Did they indulge in that to any extent during the years you were with them?—As a matter of fact, they did not. They had it all to themselves, and had no need to worry. I may say the business done by this first installation is a line of its own, but they are now starting to work up a by-product.

8185. So they regarded it as simply working up a by-product until three years ago?—Yes.

8186. So you might say it was in a state of incubation for eighteen years, prior to three years ago?—Yes.

8187. And you remained at that stage of infantile paralysis despite the efforts of this publicity department. Is that so?—Yes.

8188. Then you broke out on your own?—Yes, I came out with another firm.

8189. And the firm you are with now—had they been operating during eighteen years, or prior to the three years you had been with them?—No, not in that line of business.

8190. What was your line of business before that?—Tallow merchant.

8191. When you went to them did you go as a zinc-oxide specialist to put the zinc-oxide on the market?—Yes, I went there purposely to build the plant and get it going.

8192. I suppose your propaganda has been pretty considerable during the last three years?—Yes.

8193. I suppose you have employed travellers there?—Yes.

8194. Do they go round to the painters, and everybody?—No, we do not employ them for that purpose. We know where the painters are, and can reach them quite easily. We employ the travellers for our zinc and oil.

8195. Do not they go to the painters?—They make their own zinc and oil.

8196. What do the travellers do?—Sell it to storekeepers, &c.

8197. But not the painters?—No, not the painters. We do not retail it. We sell it wholesale as a rule, except perhaps in a case of special favour.

8198. That opens up an interesting question. Do you not sell it wholesale to the big painters?—Yes, of course we do, an odd one or two.

8199. Do they get rebates?—No.

8200. With regard to that gentleman who wrote you that letter, did you supply him on specially favourable terms?—We supplied him, through the Royal Hotel at Randwick being painted, with zinc-white, and he was the man who had to paint it.

8201. And you met him and fixed things up with him, did you not?—No. I had to meet a gentleman who was very antagonistic to zinc-white. He would not use it, but I gave him a practical demonstration of the use of it.

8202. Was not he treated on specially favourable terms with regard to the supply of that zinc-white?—No, he was not.

8203. Did he not get better terms than the ordinary retailer?—No. As a matter of fact, he did not buy the paint for that hotel; but he does buy the paint now.

8204. Does he get any special concessions from you?—No, he does not.

8205. You say the travellers go around for the purpose of putting it into various shops?—Yes, in their various shops.

8206. You do not profess to speak with any knowledge of lead paint at all?—No, I would rather keep off that subject, because my business has been in zinc only, and I am not prepared to say anything about their business.

8207. Speaking to this Board to-day you gave an expression of your opinion of what I might call the inherent merits of zinc paints?—Yes.

8208. And not the merits of zinc paints in comparison with lead paints ?—
Oh, yes. As a matter of fact, in every case I know it is equal to lead paint.

8209. I understood you to say you knew nothing about paints with a lead base ?—I do not know anything about manufacturing it.

8210. Do you know anything about it ?—Yes, we use it side by side as a demonstration for each class of work, and we find zinc is equal in any case.

8211. You put up some lead paint, and then some zinc paint alongside ?—
Yes.

8212. Have you had any substantial experience of working with lead paint ?—No.

8213. You cannot speak from any wealth of experience on the subject of lead paint ?—No.

8214. Then I may take it your evidence here is practically as to the intrinsic merit of the zinc paint ?—Yes.

8215. And not in comparison with the lead paint, in your experience ?—
No, I do not say that. I only say this : Wherever we have got a person and converted him to our stuff, he has never gone back to the lead again. I know that.

8216. Perhaps it is only those who want to get the zinc. You really cannot make a comparison, as a result of your past experience, between the zinc paints and the lead paints ?—No.

8217. Do you attach importance to the priming of the surface before you paint it ?—Yes, we do in some cases ; but of course I am not here as a practical painter, right throughout.

8218. That is a candid admission ?—Well, that is my admission.

8219. That is one of the things I did want to ask you about. I do not mean to suggest that you ought to say anything different—I am just asking you do you know of the importance that ought to be attached to the priming of the surface ?—No.

8220. Are you aware of the fact that the zinc-oxide paints are mostly used on a surface which has been already primed ?—No, I am not aware of that fact.

8221. Can you tell me this : Do you think zinc-oxide paints absorb linseed oil ?—Yes, zinc has a much greater affinity for linseed oil than lead has.

8222. It has ?—Yes, much greater.

8223. So you do not regard paint with a lead base as being a necessity for priming purposes before you apply zinc-oxide at all, do you ?—I would rather not answer on that subject. I am not a practical painter.

8224. DEPUTY-PRESIDENT : When you say zinc has a greater affinity for linseed oil than lead has, do you mean a greater chemical affinity, or that it will combine in greater quantities ?—No, it has a chemical affinity for it, but it also combines in greater quantity.

8225. Are you a chemist at all ?—No.

8226. Mr. MANNING : Have you seen the condition of surfaces which have been painted with zinc paints, and required repainting ?—Yes.

8227. You have noticed the cracks under them ?—Not in all cases.

8228. But in some cases ?—Yes.

8229. What is the cause of that crack ?—Sometimes it is due to the timber, or due probably to the failure of the zinc. In nine cases out of ten you do not know what painters put in their material. In some houses that have been painted with zinc, there is not 20 per cent. of zinc in the paint, for a start.

8230. Mr. MANNING : You said that your present sales were about 30 tons a week ?—Yes.

8231. Is that correct ?—Yes, absolutely.

8232. I mean, it is not just a guess ?—No, it is not a guess or anything like it. We could do a little more if we were forced, with a few extra hours in the week.

8233. Mr. CONNINGTON : Could you sell it ?—Well, we are selling all the material we are making at the present time.

8234. Mr. MANNING : What is the analysis of the paint you sell ?—Do you want the individual analysis, or the zinc in oil, as we term it ?

8235. I do not want you to give away any secrets; if you want to keep that quiet it can be kept quiet ?—In the zinc and oil we guarantee it to be about 98 per cent. zinc.

8236. What is the rest of it ?—Oil generally; the rest of it is generally lead, you know—one-and-a-half per cent. lead, and other little properties in it.

8237. You are aware that in many cases there is a mixture of about 50 and 50 zinc and lead ?—Yes.

8238. Do you approve of that mixture ?—I do not know. I have had no practical experience with it, and I cannot say.

8239. DEPUTY-PRESIDENT : Have you a number of these testimonials as to the value of zinc-oxide ?—I have a few here, and we have more out at the office if you want them.

8240. Will you leave yourself in touch with Mr. Woodham, so that the question of bringing the gentlemen who have written the testimonials before the Board as witnesses may be gone into by the Board ?—Yes.

8241. I will return this letter to you meanwhile ?—Thank you.

(Witness retired.)

LIONEL THOMAS COURTENAY, sworn, examined as under :—

8242. What is your position ?—I am general manager in Australia of Tyler's Water and Sanitary Limited.

8243. Does this company take the place of John Tyler Ltd. ?—Yes, it is the same company reconstructed under a different name, trading here and in the Old Country; that is J. Tyler and Co., Ltd.'

8244. How long have you been in the position ?—Since 1912, as general manager, but I have been with the company for twenty-eight years, since I left school.

8245. And in Australia all the time ?—Yes; I have had two trips abroad.

8246. But your business connection with the company has been an Australian connection ?—Yes.

8247. Does the Tyler Water and Sanitary Ltd. handle paints ?—Yes.

8248. Is the paint portion of the business a considerable proportion of its business ?—It is growing, and it is becoming an important department with us now.

8249. What is the character of the paints that you handle ?—In March, 1914, we were appointed agents in Australia for the Keystona Varnish Co., of Brooklyn, New York, and of England, too. They have a factory in England. They manufacture certain lines which have a certain holding here, and Zinolin. They are the two most important lines here. One is for inside use, and the other is for outside use.

8250. Are those the only agencies that you have ?—Yes.

8251. So that we may take it that you only handle the two kinds of paint, the Keystona Proprietary paints and Zinolin ?—Yes.

8252. Is Zinolin a product of the same company?—Yes. Of course they manufacture other lines, such as enamel and so on, but they are the two principal lines which we deal with here.

8253. What are the bases of the paints that you handle as the agent of the Keystona Varnish Co.?—They are a zinc base.

8254. Does that mean that they do not contain lead at all?—They are guaranteed to us not to contain lead.

8255. They are guaranteed as leadless paints?—Yes.

8256. Will you give us some information with regard to the uses to which it, and the other of the paints mentioned by you are put;—will you commence with Keystona?—Keystona is a line principally used in the internal work, particularly on plaster and cement work on the walls of buildings; it is not used much on the ceilings, except on zinc ceilings. Being an oil basis it is better than treating it with water paints, and is much cheaper than treating with lead paints. We have not used it very extensively on wood. I have seen a statement that it will not last, but I can show the Board samples of it where it has been on wood for six years, and they can still be seen in Bridge-street.

8257. Are those samples—samples of wood—done upon raw wood?—Yes.

8258. Not upon a lead paint priming or basis?—No, on raw wood. On the reconstruction of our own premises in Bridge-street, carried out in the latter part of 1914 or the early part of 1915, the lavatories there were treated with it, and they can be seen to-day, and we can get for you the man who did the work.

8259. Can you inform us as to the process of painting with this Keystona paint; that is, how many coats are used, what is the method of priming, and what is the method of finishing the work of painting when Keystona is used?—The number of coats vary according to the class of work it is for. If it is being put on over an old surface that has already been painted, there is no need to put any special liquids in at all. If it is being applied on a new plaster surface we generally recommend the use of a preparatory liquid which contains a certain percentage of varnish and other ingredients to prevent suction; that is, with the first coat. The second coat is simply applied with Keystona, if necessary thinned with a little turps. If it is applied to an old surface that has been treated with oil paint, it is not necessary to put any further liquids in; it will go over that.

8260. And the priming liquid is a special preparation that is manufactured by your principals, and is intended for use solely with the Keystona paint?—No; the liquid is manufactured locally for us. Certain painters use their own liquids. They have their own ideas, and they mix their own liquids with the first coat.

8261. Does the liquid contain lead?—No; it is the oil and varnish and one or two shellacs, and perhaps drying properties.

8262. But no lead?—No lead at all.

8263. Can it be said that the completed job is a leadless job?—Absolutely.

8264. How does the Keystona compare in respect of costs with lead paints?—As against lead we claim that it is cheaper. The first price per gallon is much dearer than lead. For instance, the average retail price to-day is 32s. 6d. per gallon. You can produce a gallon of lead for about 19s. 6d. by buying your leads and oils and mixing locally. However, gallon for gallon Keystona will cover more than lead paint, and we say it has a greater density. There is no stiffening required. Keystona is a perfectly flat finish—a mat finish, and not a glossed finish. It does not require any stiffening, such as is generally required with lead being applied on inside work, so that the ultimate cost is cheaper than lead. Might I refer to a

statement I saw made in reference to it being a substitute for kalsomine and water paints. It is nothing of that sort. It was brought out here to take the place of lead paints for inside use, and it is in universal use in America.

8265. That is, it is a true paint, and not a distemper?—That is so.

8266. How does the completed job compare in cost with the lead paint job?—A less cost.

8267. You think that the whole process of painting can be performed at a less total cost than the process of painting with lead paint to produce comparable results?—Yes, we claim so. Of course, our Keystona paint is not the only one; there are a number of other flat finishes. One big advantage with them is their washing property, especially when they are used on walls where children are; you can wash them repeatedly. In my own case it was done six years ago, and I have six little children, so we have plenty of handling of the walls. The walls of the dining-room have been washed at least a dozen times. Those walls were re-treated last year.

8268. So far as the covering quality of the Keystona paint is concerned, how do you compare that with the covering quality of lead paints?—We claim that the Keystona has from 15 per cent. to 20 per cent. greater covering capacity on the same class of wall. The general average is about 100 square yards, and the general average computed for lead is between 80 to 85 square yards per gallon.

8269. With respect to obliterating quality or opacity, how do you compare the two?—We say it is greater, especially in the colours.

8270. And with respect to durability?—We can give you examples. I refer especially to the Australian Jockey Club at Randwick. They were the first people to use the material here. When the agency was offered to me, our firm had not been handling it, and I was rather anxious to know whether I stood on good ground in taking it, and I had some tests made; those tests were made by two of the leading architects here—by Mr. Marks, of Robertson and Marks, and by Mr. Green, of Scott and Green. They tried it out first and gave me very favourable reports as to its covering powers, and it was then used out at Randwick. We went out last week to know if there were still any of the old walls in existence, and they said yes, they could show walls which were done in 1916. The foreman painter is still there, and he can give evidence that those walls have never been interfered with, and the results can still be seen to-day.

8271. That is the information you can give us then, with respect to the Keystona paint, which is for use under cover only?—Yes.

8272. That is generally for inside use?—Yes.

8273. Now with respect to your Zinolin, the paint which is intended for outside as well as inside use?—Might I first give you one other instance with regard to Keystona? I noticed a statement that the Government offices to-day are not being treated with these flat finishes, and certain offices were quoted; for instance the Colonial Secretary's Office and the Lands Office were quoted with relation to the evidence as being treated with lead. Neither of those buildings was treated with lead paint. I was after the order personally at the time, and I happened to know that the Colonial Secretary's, and the Lands Office (the Mines Department) were both treated with a preparation called Mirror White, which has a zinc base, and which was then represented here by H. and W. Grear, who are now in the motor business. If the Board wants evidence on that they can get it. The other big Government buildings which were done of recent years—I suppose the biggest job was the Water and Sewerage Board in Pitt-street—after the new offices were built, the whole of the inside of the old offices were treated

throughout; they had been treated previously with lead paint, and Keystona paint was used in the whole of the renovations right throughout.

8274. How many years ago was that? —I think it was about two years ago when the new offices were completed. When the extensions were finished they had to treat the old part so as to match the new, and Keystona was used on the old portion. The Conservatorium of Music was one of the big Government city jobs, and that was also treated throughout with Keystona; the same with regard to certain offices in the Education Department; also with regard to slight alterations with regard to the Treasury building, and quite a number of schools. The schools have been pretty good users of Keystona. There are some I can refer to in respect to the statement which was made here. Then there are the Government hospitals. The hospitals for the insane at Rydalmere, Gladesville, and other places, regularly use Keystona.

8275. Is Keystona thinned with turps?—Yes, it can be thinned with turps, and also kerosene if necessary.

8276. Does it contain turpentine in its original form?—I cannot say that. I might say that it has been tested, and if the Board wish to have the analysis, it can have it. It was tested by the Public Works Department before they used it, and it was tested at the University.

8277. When you say tested, do you mean chemically analysed?—Yes, chemically analysed by the Public Works Department, the University, and the Customs Department. No doubt they would have records of the tests, but I have not seen them.

8278. Now with respect to the Zinolin, the paint which can be used on outside work as well as on inside work; what is its basis?—Zinc.

8279. How does it compare in cost with ordinary paints on a lead base?—When we first put Zinolin on the market we did not bring it out as a cheap substitute at all; it was more expensive; but with the increased price of lead to-day, notwithstanding the increased cost also of Zinolin, we maintain that paint can be made from Zinolin as cheaply as, if not a shade cheaper than from lead to-day.,

8280. When you say that paint can be made from Zinolin, is Zinolin then not a paint ready for use, but merely a paint basis?—It is sold the same as white-lead is sold to the painter. It is zinc in oil.

8281. It is a pigment rather than a paint prepared ready for use?—Yes.

8282. So that Zinolin may be regarded as a paint bare rather than a paint ready for application to buildings or vehicles, or whatever it may be?—Yes. I have here a note of relative costs. These are the costs that were taken from the annual contract prices of the Public Works Department, to which we tender. For instance, we have to tender annually for these supplies, in competition with other people, and this is how we claim the production of paint from Zinolin will compare with lead; we take 1 cwt. of lead as costing £4: 3½ gallons of oil at 7s. 6d. per gallon, which comes to £1 6s. 3d.; one-quarter gallon of turps, 2s.; a quarter-gallon dryers, 3s. 6d.; allow time for mixing and stirring, say 5s.; that makes a total cost of £5 16s. 9d. The average production from that is, say, 6 gallons of paint, and that will give you 19s. 5½d. per gallon as the cost of producing a gallon of paint ready for use. With regard to Zinolin, the cost of 1 cwt. at the present contract price is £7 8s.; it takes 7½ gallons of oil, which at 7s. 6d. per gallon, comes to £2 16s. 3d.; one-quarter gallon of turps, 2s.; one-quarter gallon of dryers, 3s. 6d.; allow the same time for mixing, 5s. That is a total of £10 14s. 9d., but that will produce 12 gallons of paint, which equals 17s. 11d per gallon. It may be argued as to the covering power of those two paints that—

8283. I will proceed to ask you now what are the relative covering powers of Zinolin and paints on a white-lead base?—We claim that paint from Zinolin, on the percentage of oil that I have given you there, will cover equally with the paint from lead, on the same percentage as I have given you there.

8284. And so far as opacity is concerned, how do they compare?—It compares more favourably, but we will say the same.

8285. You say in effect that you require no more coats of the Zinolin base paints than you do with the lead base paint?—No. We have had examples where they show it required less. We had one striking example lately, which the Board can see for itself; that is a big building in Bridge-street, belonging to the Government. I think it is the Statistician's Office, where the Statistician used to be.

8286. Do you mean the terrace of houses below the Hotel Metropole?—Yes. That was estimated in 1914 to be repainted, and the foreman of the work told me it was estimated to take three coats of lead-paint. The work was held up on account of the war, and they went on with it a few months ago. They then used Zinolin, having Zinolin in stock, and they finished the work (the Housing Board had charge of the job) with two coats of paint, where they had previously allowed three, and they told me that the completed estimate was less than it had actually been in 1914. It was only during the week that the matter came under my notice, and I said, "Would you go to the Board of Trade?" and they said, "We can only give facts if we are called." The other test which I thought would be a better one would be for the Board to make arrangements, if possible, to see the paints mixed up by the Department of Education. They have large stocks there, and they could take out of stock there, and have the test made themselves. I would be prepared to abide by that.

8287. Does the Education Department stock the Zinolin largely?—Yes. We have been worrying them a good deal; we claim that it being non-poisonous, it has its advantages so far as children are concerned. I have never seen the Minister on the matter, but I understand that when the matter of cleanliness was first introduced the Minister interested himself in it, and the Education people have been using it a little more freely this last twelve months.

8288. And you think it is because of it providing a safer covering than a lead base paint would provide?—Yes.

8289. With respect to its durability, can you compare Zinolin with a lead-base paint?—We claim that, especially near the sea air, Zinolin has a longer life than lead paints. There, again, samples can be seen at the Australian Jockey Club, which is about one of the oldest examples I can mention.

8290. On the Randwick racecourse you mean?—Yes.

8291. It is used on outside work there?—Yes, it is used on the fences. They used to have a lot of trouble with people leaning on the fences and it getting on to their clothes, and they used to have a lot of claims and complaints about lead chalking and getting white on their clothes, and that is how the matter arose.

8292. Are the fences which keep the spectators from the course on the Randwick racecourse invariably painted with leadless paints?—I cannot say that. All I know is that they have used it there, and that Epping and the Ascot race clubs have also had it.

8293. Have you had occasion to check the lasting power of Zinolin as compared with the lasting power of lead paints; that is, have you compared the two paints as compared side by side and under the same weather

conditions?—Here again I can only give you the reports of the people who use it and speak very well of it. I would rather the Board bring those witnesses themselves. I can give you the names of several who have used it for some time, and they can be subpoenaed if necessary.

8294. We will take a list of the names. Can you give us the names now?—There is the foreman painter of the Australian Jockey Club; there is Mr. Marsden, the present foreman for H. T. Thompson, builder, who was one of the earliest users of it.

8295. It is not so much the individual as the firm?—Yes. There is D. Wheelan, painter, of Mascot; he was also one of the earliest users. Then there is a man connected with shipping work, the foreman of Morrison, Sinclair & Co., of Balmain; I think his name is W. McDonald. Mr. B. J. Grice, the painter, used half a ton of it, on the Thomas Walker Hospital; that was about two and a half years ago. I do not know whether that was long enough ago to be a good test. Some of the old jobs you could see would be a place in Ash-street, at the back of Challis House; that has been done about five years now; there is the wall of a big building there. It was after the fire that that was done; the whole of that southern wall was treated with Zinolin.

8296. How many years ago was that? I think it was between four and five years ago. "The Occidental Hotel," in York-street, was done four years ago. D. Hepplestone, late foreman for W. Mason, the master painter, also used Zinolin for some years back.

8297. Have you listed the jobs to which you can refer the Board?—Just a few of the older jobs.

8298. The jobs that have been standing for some time?—That one in Ash-street is one of the only ones. There is the "Occidental Hotel." There is the Fire Brigade in Castlereagh-street. Of course, that was done over a lead basis, I understand. Then there was the "Hotel Sydney," a big wall down there. Then there are the resumed properties. I had a note from my agent in Victoria some three or four months ago, stating that the Victorian Railways were making tests with Zinolin, but they wanted some reports from Government Departments who had used it here, independent of us, and they were calling on the Education Department and the Resumed Properties and the Government departments we have mentioned for reports. I understand that reports were sent over; I have not seen them, but I know that they were to be sent over. The Board might be able to get those, which would give the experience of these people.

8299. What were the departments?—The Education Department and the Resumed Properties Department. They were called upon for reports. I have here also a list of the Keystona jobs in 1914. There was Pattinson's job, in George-street, inside; that is the chemist. I do not know what part of it was used that way. Mr. Perrott was the painter, and you could get the information from him. There was the Conservatorium of Music, Daking House, in Pitt-street; that material was supplied to them in August, 1914, and C. Ritchie was the painter. There was the Australian Jockey Club, in Randwick.

8300. These are all 1914 jobs?—Yes, I am giving the old ones for the Keystona. We have plenty of big recent jobs. There was the Bank of North Queensland, in Bridge-street. There was a private house, 55 Hereford-street, Glebe; E. Atkins was the master painter there. I have a note here that the Water and Sewerage Board's job was done in 1917. Another big job done recently was the "Hotel Mansions," in Darlinghurst. That was a very big job.

8301. Was that quite a new job ?—About two or three years ago. That was done with Keystona, and a big quantity was used there.

8302. Can you compare the consumption of paints on a zinc base with paints on a lead base ?—I do not think there is any comparison. Paints on a lead base certainly hold far the greater sway in Australia. Even in our own business Keystona and Zinolin has been practically confined to the metropolitan area; there is very little in the country. Of course, the country work is cheaper, and they use the water colours inside and paint on a lead basis outside. We were handicapped during the war because we could not get supplies; and that is a thing I want to refer to, because I saw here that it was stated that this was the result of not being able to get supplies of lead during the war. You may say that the reverse had been the case. We were greatly handicapped during the war because we could not get our materials forward.

8303. Is any lead manufactured by you for your principals or in connection with your Keystona or Zinolin business in Australia ?—No. The only part we get manufactured here is the preparatory liquid.

8304. You have told us that the priming liquid is manufactured here ?—Yes; that is made here by the varnish people, Taubman's or Docker's people.

8305. Have you any knowledge as to the amount of locally-manufactured zinc base paint that is used in New South Wales ?—No. We have used a little latterly ourselves, which we bought from Gearin's, but only about 3 cwt., and that was for certain jobs.

8306. I take it that you are merely commercially concerned in the paint ?—That is all.

8307. You are not a chemist in any way ?—No.

8308. And you are not a practical painter ?—No.

Examined by Mr. CONNINGTON :—

8309. With regard to the Keystona and Zinolin, they are imported paints ?—Yes.

8310. Can you give any evidence as to the quantities imported in recent years ?—I have the information with respect to the last two years. Of course, in 1918, we got practically nothing forward, on account of the war, and in 1917 we got very little.

8311. DEPUTY-PRESIDENT: I had it in my mind to ask the witness for that information, but because of what he told us with regard to the dislocation of business during the war, I hardly thought the information would be available.

8312. WITNESS: In 1919 the importations of Keystona were 5,760 gallons, and of Zinolin 1,162 gallons; in 1920 Keystona 11,000 gallons, and Zinolin 2,400 gallons.

8313. Mr. CONNINGTON: That is about 100 per cent. increase in quantity ?—Yes. Of course, there will be very little Zinolin come in now, I am afraid, with the new duty.

8314. You have perused the evidence, I understand ?—Yes, of three of the witnesses.

8315. And you went through Mr. Grice's evidence did you not ?—Yes.

8316. He gave evidence there that zinc is too hard; that it cracks and crazes. Do you wish to say something about that ?—Yes; we deny that in the case of the material we handle. They claim to have a patent process for ridding the zinc of this trouble, and preventing it from cracking and crazing. That was the old objection to zinc, but it has been overcome.

8317. Is that the Mr. Grice to whom you referred as having used some of your stuff?—Yes.

8318. You made mention about the Walker Hospital being completed with Zinolin?—Yes.

8319. Who carried out the job?—Grice & Co. carried out the job. Power and Adams were the architects.

8320. Are you prepared for the Board to inspect the value of Zinolin paint, by an inspection of the Walker Hospital?—We are quite prepared for the Board to test it anywhere it has been used.

8321. You say that was done about three years ago?—I am not sure when it was done. That was one of the jobs Mr. Grice did where half a ton of it was used. I thought he would have mentioned that here. Of course, I cannot say what other proportions of materials were used with that.

8322. With regard to Mr. Perrott's evidence, Mr. Perrott is reported to have said that flat-finished and zinc-lined are used inside to take the place of kalsomine and paper. I think you answered that earlier?—Yes, we deny that that is the case.

8323. Then you answered what he said that public buildings would not use leadless paints?—Yes. There is one other statement there where he says that there is no oil in flat paints. That is wrong. Keystona is mixed with linseed oil in the early stages.

8324. DEPUTY-PRESIDENT: Do you claim that Keystona can be used successfully in outside work?—No.

8325. You see, that answer was given with reference to outside work. The witness said: "The leadless paints, as we have them to-day in the proprietary lines, are called flat paints, and are not much good for outside work, because there is no oil in them." You do not contest the statement that the proprietary paint you represent, *i.e.*, the Keystona paint, is unfit for use outside?—That is where these paints get blamed. People take them and put them to uses for which they are never intended, and that is the cause of the trouble.

8326. But you say the reason given for that statement is not incorrect?—No.

8327. Mr. CONNINGTON: Did you read the evidence of Mr. Mason?—Yes.

8328. He is reported to have said that his association never considered the danger of lead-poisoning. Do you wish to say something with regard to that?—Well, I had an experience with the representatives of his association. In 1918 the Master Painters' Association of Australia, had an exhibition at the Town Hall, Sydney. We happened to be associate members or exchange members of that association, and we had a stall there and an exhibit. At that time the representative of the Keystona company was in Australia, and he had taken charge. We had made a feature of the fact that Keystona and Zinolin were not poisonous, and we had cards printed to that effect, and they were on the stand. The first morning it was opened this representative of the association came up to me in a great state and said that Mr. Maxwell was their representative in Queensland, and that he had taken great exception to these signs, "non-poisonous," being there; he said it was misleading, and Mr. Maxwell was particularly against that, and thought it helped in the agitation of the painters for increased wages and decreased hours when not using the non-poisonous paints, and they got up the argument that lead was not poisonous, and they implored us to take those signs down. I refused; I said that my instructions were that those signs were to be there, and that it was part of our propaganda. That was my experience in connection with their association.

8329. Mr. MANNING : You are speaking now of an exhibition at the Town Hall ?—Yes, which was conducted by the Master Painters' Association.

8330. DEPUTY-PRESIDENT : The question was put to Mr. Mason by me, and it was designed to elicit information upon what had transpired at meetings of conferences or committees of the Master Painters' Association ; that is all.

8331. Mr. MANNING : That was what I thought. I think the question was "Have your various committees or conferences ever considered substitutes in relation to lead-poisoning ?"

8332. Mr. CONNINGTON : I think, Mr. Deputy-president, that you asked the question : had they ever considered the use of lead in paint from the standpoint of the health of painters.

8333. DEPUTY PRESIDENT : Quite likely.

8334. Mr. MANNING : I do not think it is quite fair to urge in reply to a thing like that that there was an occasion when the word "non-poisonous" was used, and somebody protested against its use.

8335. Mr. CONNINGTON : The idea would show that they did regard the sign as a suggestion that it would aid the men in their propaganda for leadless paints, or for higher wages because they used these lead paints.

8336. DEPUTY-PRESIDENT : It is open to you to inform the Board as to the debates which have taken place as between the union and the master painters upon the subject of the poisonous character of the ordinary paint medium.

8337. Mr. CONNINGTON : Yes. I think we have evidence on that. The question has arisen before various wages board inquiries as to the health of painters as the result of using lead paints. However, I will not worry very much about that. There will be a lot of things to consider before the case is finished, and that is only one of the items, and a small one.

8338. DEPUTY-PRESIDENT : I remember asking that question of one or two witnesses. I asked Mr. Perrott, "Do those conferences ever discuss the use of substitutes in relation to lead poisoning ?"

8339. Mr. CONNINGTON . Mr. Mason also gave evidence that his committee made tests for the purpose of ascertaining which paint would be the most valuable to the trade. Have you ever been asked to supply a sample of your manufacture ?—Not to my recollection.

8340. Can you say definitely whether you have or not ?—I will swear that I have never been asked.

8341. You have never been asked to assist in any way ?—No.

8342. You are not a practical painter ?—No.

8343. And you do not profess to be able to give us any information with regard to getting the paint ready, and so forth ?—No.

Cross-examined by Mr. MANNING :—

8344. I understand that you claim Keystona as being an inside paint, and Zinolin as the best for an outside paint ?—Yes.

8345. Do you import the Zinolin in gallons or in paste ?—In gallons and in cwt. form, but all in the same form of paste. A gallon of Zinolin weighs 28 lb., but it is not then ready for use ; it has to be mixed the same as lead.

8346. In giving the figures you gave about the importations of Zinolin, you gave it in gallons ?—Yes. That would really produce half that quantity of paint. One gallon of Zinolin will take 2 gallons of oil, producing 3 gallons of paint, so if you multiply those figures by three, you will get the gallons of paint.

8347. You measure the importations in gallons of paste ?—Yes.

8348. You mentioned a number of places where Zinolin has been used ?—Yes.

8349. And you rely for your information about Zinolin upon its effect in those places?—Yes, and from the opinions of the people who have used it.

8350. But so far as your own personal knowledge is concerned from those places.

8351. Is it or is it not a fact that in all cases where Zinolin has been used at those particular places, they had been painted before?—No, I cannot say that it is a fact in all cases.

8352. Would you deny it was the case in every case that paint had been on those surfaces before?—No, I would not deny it.

8353. Although you are not an actual painter yourself but are a supplier of the material, you do appreciate the necessity for priming before applying the finishing coats?—Yes, but I will not admit that it is necessary to prime with lead to use them.

8354. I am only asking you whether you regard priming as an important operation?—Yes, but the priming coat can be used with the Zinolin as well as it can be used with the lead.

8355. But you do regard the priming as an important feature?—Yes.

8356. And probably the most important of all?—Yes.

8357. Because it is the priming that gives it the solidity and the lasting power?—It is the ground-work for it.

8358. In the subsequent coats there is always a certain amount of oxidation?—Yes.

8359. After all, the ground-work gets back to the priming?—Yes.

8360. You mentioned the Randwick racecourse. What did they use there?—Both Keystona and Zinolin; Zinolin outside and Keystona inside.

8361. And there the reason for it was the rubbing off of the stuff and its getting on the clothes of the people who were leaning over the fences?—Well, some.

8362. Do you recognise that that powdering can take place, and does take place, without interfering at all with the weather-resisting power of the paint used?—I am not going to argue that. I know that it takes place and that it is objectionable.

8363. Do you know that with all the best outside lead paints, with the best of oils and the best pigments, and everything of the best, that powdering takes place?—Yes.

8364. And it is not regarded as interfering with the weather-resisting power of the paint used?—I will not admit that. I know that it takes place and that it is objectionable, and that is one of the reasons for the objection to lead paint.

8365. We all know that the Randwick racecourse fence was painted long before they ever put Zinolin on?—Yes, but they are doing some work out there now without any priming. They are priming with Zinolin from the first coat. My representative was out at Randwick and brought that report back to me. They are priming from the groundwork with Zinolin.

8366. And I suppose that was done on the recommendation of your man?—I hope so.

8367. Probably he had a finger in the pie?—I hope so, the same as I would myself.

8368. But the bulk of the Zinolin on the Randwick racecourse was over that old fence which had been painted since Carbine used to gallop round the course?—As far as that job was concerned. The Zinolin we sell is only a very small proportion of what is used in the old countries. I understand that the American Navy uses it extensively.

8369. Do you use it in colours?—We do not colour it, but it can be coloured. The painters use it exactly the same as they are using lead.

The painter can buy a cwt. of Zinolin just as he can buy a cwt. of lead, and he goes through exactly the same formula as if he were dealing with lead; he mixes his colours just the same. We have sent out a little red mixed for the Board of Health.

8370. You mentioned the Housing Department, where you used Zinolin?—Yes.

8371. And you were speaking there of its opacity?—Yes.

8372. As a matter of fact that was done in grey, was it not?—Yes. The colour was not a very nice one, but we had nothing to do with that.

8373. I am not finding fault with the colour. You claimed also that it was effective after the application of two coats?—Yes.

8374. You would never put more than two coats on of grey, would you?—I think so.

8375. Do you not know they would not?—I would not know.

8376. That is outside your sphere?—Yes. That building had not been painted for 16 years they told me.

8377. I ask you, do you not know that with greys they never put on more than two coats?—No, I will not admit that.

8378. Do you think they do?—I know they do; I am certain they do. You will find numerous cases where architects will mention that it is to be painted with three coats.

8379. I am asking you about grey in particular. You say that is so in grey?—Yes.

8380. Of course, you have not any experience of your own as a master painter?—No. It is only the six years since I have been handling this that I have made inquiry into these things.

8381. Did you say that Zinolin was 32s. 6d. per gallon?—No; Keystona is 32s. 6d. a gallon.

8382. You say that you know of your own knowledge that grey is applied in three coats?—I say that most painting, especially in new work, is done with three coats.

8383. I am not asking about most painting; I am asking you about the application of the grey Zinolin. In cases where grey Zinolin is applied, is it not a fact that it is applied only in two coats, where if it were white there would be three coats?—No, I will not admit that. I say that a fair comparison that way is to take a gallon of white paint made from white-lead and a gallon of white paint made from Zinolin, and take a blackboard and give it one, two, and three coats, and compare and see which colour is the best. I am quite willing to submit to that test, which is the fairest test to take.

8384. Do you think the best test would be on boards?—I think so. That is a fair test. You can put it on glass, if you like, where it will not absorb so much; I have seen it tested that way.

8385. However, you say it is not used only in two coats where the colour is grey?—I do not know. Some classes of work may want three.

8386. Quite irrespective of whether it is grey or anything else, you say that even with the white the same number of coats of white would show up in favour of Zinolin?—We claim so.

8387. Would you tell me what is the composition of Zinolin?—No, I cannot tell you that. I have here the pamphlet which is sent out to us by the makers, and I am prepared to hand you that. I have marked a clause there with a cross.

8388. "Zinolin is another departure from the old system of paint and painting. Zinolin is our particular name for a new paint pigment for use on all exterior painting. Zinolin does not contain white-lead, lithopone, or pyrites." That is all you know about its composition?—Yes. I say the

only other test is to get the tests which the Customs Department and the University and the Public Works Department have made.

8389. You do not know anything about the chemical properties of the various paints do you?—No.

8390. Or the conditions of having certain chemicals in paints?—No.

8391. So that if I asked you what was the benefit of having this, that, or the other, you would say that you did not know?—That is right.

8392. You are merely a medium between the producer and the consumer?—That is all.

8393. You put it on the market, and that is all you can tell us about it?—That is all.

8394. With regard to Keystona, you claim that that is for the inside?—Yes.

8395. You seem to repudiate any suggestion that it is a mere substitute for paper or kalsomine?—Yes.

8396. I do not think it was actually intended in that way; but it does go on to surfaces which would otherwise be kalsomined or papered?—Or leaded.

8397. If a wall like this were to be renovated, it would go on to a wall like this?—Yes.

8398. You would not lead a wall like this, would you?—In many cases. They used to do it before they had so much of this flat finish.

8399. But they do not now?—No; this has taken its place.

8400. The Keystona is mostly used on the inside walls?—Yes, and for kitchens. For instance, take the kitchens; they used mostly lead paint on them, although the rest of the building might have been kalsomined. Numerous kitchens are now finished with a flat finish; not only ours, but dozens of other flat finishes.

8401. I think you said that Keystona was 32s. 6d. a gallon?—Yes.

8402. Did you not charge 35s. only the other day?—No; we have been charging 35s.

8403. When did it get down to 32s. 6d.?—Three weeks ago. That is the retail price. We march with our competitors, you know. Flatone has dropped to 32s. 6d., and we have to go with them. Might I refer to another matter with relation to a test. The Board of Health some three years ago, I understand, made some recommendation against the use in dairies of stuff that flaked off, such as lime and that. We were given to understand that they circularised their health inspectors throughout the country districts, calling on the dairymen, particularly in their milking-sheds and milk-bails, to be careful of the material they used, and we were also given to understand that paint from Zinolin was one of the lines they recommended, on account of it being non-poisonous. I suggest that the Board of Trade might, if necessary, call evidence from the Board of Health in that respect. It might be useful to you.

8404. MR. MANNING : It is scarcely a matter in dispute. It is not regarded as poisonous, so far. Whatever it is, whether it is good, bad, or indifferent, as a paint, it is not looked upon as a poison. Does the Board require any further evidence on this?

8405. DEPUTY-PRESIDENT : It is hard to tell where the line must be drawn so far as the exclusion of evidence is concerned. I think we had better make a list of the persons to whom Mr. Courtenay has made reference, and then we can consider which of them shall be called. I do not think it is necessary to do more than re-read the evidence which has been given by Mr. Courtenay, and a list of the persons referred to can be taken from that.

8406. MR. MANNING: All I meant to suggest was this; we would not suggest that this was poisonous, so far at any rate.

8407. DEPUTY-PRESIDENT: Mr. Courtenay has already told us that turpentine enters into the composition of the paint, at least when thinned.

8408. MR. CONNINGTON: That is, it can be thinned with turpentine or kerosene.

8409. WITNESS: That is right.

8410. MR. CONNINGTON: Is it usually thinned with turpentine or kerosene?—In the last finishing coat; sometimes they mix oil with the first coat.

8411. MR. MANNING: With Zinolin?—Or Keystona too.

8412. But certainly with Zinolin?—Always with Zinolin.

8413. Then you seem to know something about the composition?—After it leaves our place. I do not know anything about the composition when it enters our place.

8414. DEPUTY-PRESIDENT: I gather from what the witness has told us that the vehicle is modified to some extent with turpentine.

8415. WITNESS: I produce a pamphlet showing what the manufacturers say about it.

8416. MR. MANNING: This is as to the method of mixing?—Yes.

8417. In regard to Keystona, your mixing directions show that there should be an addition of proportions of turpentine according to the quantities to be used?—Yes. Sometimes it hardens a little in the tin coming out, and then you have to thin it down. It comes through the tropics.

8418. And the turpentine is added to the bucket in which the stuff has been poured?—Or kerosene. We recommend either.

8419. According to the number of gallons prepared?—Yes.

8420. And the proportion is about one to one and a half pints of turpentine to the gallon?—Yes.

8421. Are any of these colours that are mentioned here poisonous? That I cannot say. They are made from dyes. I understand that some of the colours are treated with aniline dyes, because one of the excuses they gave us during the war with regard to our not getting supplies forward was the scarcity of aniline dyes.

8422. With regard to thinning white, you say that a gallon of Keystona takes about one and a half pints of turpentine?—That is for the finishing coat. Of course, for the first coat, we generally use the preparatory liquid.

8423. How many coats do you use altogether?—Sometimes two and sometimes three, and I have seen as many as four and five. You get bad walls and you do not know what the trouble is, and you have to go over them again. We generally recommend two coats or three coats.

8424. One and a half pints of turpentine are used there. The tinting can either be done by adding oil tint to the Keystona when first turning up, or the Keystona may be first thinned with turpentine?—Yes. We find that some painters prefer to mix their own colours. That was one of the strongest prejudices we found against Keystona when we first introduced it.

8425. DEPUTY-PRESIDENT: Keystona is self-coloured?—Yes. Some painters prefer to mix their own colours.

8426. MR. MANNING: If that is so, we may take it that the fumes that arise from the turpentine are a pretty constant quantity both in mixing and in the application of Keystona? About the same as with lead, I should say in that respect. We recommend the same quantity of turps in Zinolin as is recommended in the case of lead.

8427. We do not claim to be immune from the use of turpentine?—I do not think we can either.

(Witness retired.)

8428. Mr. MANNING : I produce a copy of the notice which is posted up in the works of Lewis Berger and Sons (Australia) Ltd. I would like a note to be taken that we have produced and handed to Mr. Connington the price list of Lewis Berger and Sons Ltd. I also tender a return by Lewis Berger and Sons Ltd., showing, in respect of workmen's compensation, the classification of employees and the rates charged per cent. I also tender particulars of nine cases of white-lead. The number of workers affected was thirty-one altogether, nine of them being in the white-lead department, and particulars of their cases appear now. There is no actual case of lead-poisoning.

Notice to Factory Operatives in Works of Lewis Berger and Sons (Australia) Ltd., marked Exhibit 18. Return of Workmen's Compensation, Classification, and Rates of Employees of Lewis Berger and Sons (Australia) Ltd., marked Exhibit 29. Particulars of cases of workmen employed Lewis Berger and Sons (Australia) Ltd., coming under Workmen's Compensation Act, marked Exhibit No. 20.]

JAMES KEITH MORICE, previously sworn, examined by Mr. MANNING :—

8429. What position do you hold?—Manager of the Sydney branch of M. H. Lauchlan & Co.

8430. Do you hold any other position at the present time?—No.

8431. You are familiar with the British Australian Lead Manufactures Proprietary, Limited?—Yes.

8432. That company was formed in 1918, was it not?—Yes.

8433. By seven British lead corrodors?—No, that is not correct. All the British lead corrodors, with one exception, are interested in the company, and that would be about fifteen or sixteen.

8434. That was formed by those interests together with the Broken Hill interests?—Yes.

8435. Then you commenced building operations?—Yes; they commenced building operations towards the end of 1919.

8436. Can you give the cost of land and the building?—Altogether about £175,000.

8437. And the plant and machinery?—The plant and machinery were £25,000.

8438. That in round figures is £200,000?—Yes.

8439. What are the activities of the company?—They are corrodors of lead and manufacturers of white-lead.

8440. Where do they get their supplies from?—Broken Hill.

8441. You have mentioned the building and the machinery. What output of white-lead is it estimated to produce?—2,500 tons per annum at the present time under present conditions.

8442. Is the policy of the company to keep as it stands at present or to increase?—The policy of the company is to increase.

8443. What is the determining factor of the question of increase; what is to determine when the increase takes place?—Trade development.

8444. To that extent will the increase be made then?—The duplication of the present building and plant.

8445. What would the output be increased to?—The output would then be increased to 5,000 tons per annum.

8446. Is it the intention of the company to erect paint works?—That is the intention of the company, to erect an up-to-date paint works.

8447. For the purpose of manufacturing various paints?—Yes, for the purpose of manufacturing all classes of paints, dry colours, kalsomines, colours ground in oil, and eventually varnish.

8448. How many employees have you at the present time?—At the present time there are twenty-eight employed in the factory.

8449. And when fully staffed?—When fully staffed that should increase to about fifty.

8450. Does that include the management and the clerical staff?—No, the management would be outside that.

8451. Would that include the clerical staff?—Yes, that would include the clerical staff.

8452. DEPUTY-PRESIDENT: That is the factory clerical staff?—Yes.

8453. There will be an administrative office somewhere else, I take it?—Yes.

8454. Mr. MANNING: At what rate are the factory wages per annum at the present time?—About £7,000.

8455. Are they on the increase?—They will be increased. By the time that it is fully staffed it will be £16,000.

8456. Under the Workmen's Compensation Act the employees in your factory are rated: Lead workers, 22s. 6d. per £100 of wages?—Yes, 22s. 6d. per £100 of wages paid.

8457. Is the machinery you have Australian made machinery?—It is all Australian-made, with the exception of the travelling cranes and the grinding stones.

8458. Do you buy large quantities of Australian lead?—We will eventually buy large quantities.

8459. And acid pots?—Acid pots, from a quarter of a million to 300,000.

8460. Acid acetic?—Yes.

8461. Tanned bark?—Yes.

8462. Wood and iron kegs?—Yes, all Australian.

8463. And other necessary material?—Yes.

8464. What does tan bark alone for present requirements cost?—About £2,250.

8465. How is your factory equipped with regard to lavatory accommodation and so forth?—Complete lavatory accommodation is provided with hot and cold water shower baths, hot and cold water baths and basins, and a cupboard for every man to hang his clothes in.

8466. Do you supply overalls?—Yes.

8467. Of what material?—White duck.

8468. Have you a regulation about removing those in lunch and meal hours?—The regulation is that no man takes his meal with his overalls on.

8469. Do you supply clean overalls each week?—There is a washing plant at the factory where the overalls are cleaned.

8470. You have them cleaned?—Yes, we have them washed and cleaned.

8471. Have you a medical officer?—Yes, a medical officer has been appointed.

8472. And a regular medical examination?—Well, it has commenced, but we are hardly in operation yet.

8473. How often is it to be made?—The medical examination will be once a week.

8474. The head office of the company is in Melbourne, and your firm looks after the business interests of the company in Sydney?—That is so.

8475. How long have you been associated with the oil and colour trade?—Forty-two years.

8476. What has been the nature of your experience in the trade?—As factory and warehouseman, and salesman in wholesale and retail places, and later commercial traveller until now.

8477. During that period were you constantly handling dry colours?—For about fifteen years of that period I was constantly handling dry colours.

8478. And white-lead?—Yes, and white-lead and colours in oil generally.

8479. So that you have had some experience of the risk run by a person handling those various things?—Yes.

8480. Do you regard the risk as a considerable risk?—I consider that the risk in handling dry colours, and lead especially is greater than the risk run by any painter.

8481. Have you ever met a case of lead-poisoning in your experience?—I have, one.

8482. Where was that?—He was a worker in the corroding works.

8483. How long ago was that?—It must be thirty-five years ago.

8484. That is the only case you have come across? That is the only case, and one doubtful case of a salesman I met in Sydney.

8485. You have also come across a case of painter's colic, have you not?—Yes, I came across one case of painter's colic.

8486. Only one?—Only one.

8487. During the first twenty years of your experience were you in constant touch with painters?—I was in daily contact with them.

8488. What opinion did you form of them as a class, whether they were healthy or sickly?—I consider painters generally a very healthy class.

8489. Have you ever heard any expression of dissatisfaction amongst them as to their calling?—No.

8490. Or the condition under which they work?—No.

8491. Has your firm had experience with leadless paints?—Yes.

8492. Zinc sulphate and lithopone?—Yes, we had experience of one.

8493. What was the result of your experience?—Very unsatisfactory.

8494. In what respect?—In the first place the covering is not good.

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

(On resuming at 2 p.m.)—

8495. I think you said you had experience with leadless paints, and your experience was not satisfactory, and they were withdrawn from the market is that so?—That is so.

8496. Were they paints manufactured by a firm of high standing?—Yes, very high standing in the oil and colour trade.

8497. A British firm?—Yes.

8498. That is the only experience you have had with leadless paints?—Yes.

8499. Is this document (handing a document to witness) a form which has to be filled in by intending employees of yours?—Yes, that is filled in and held by the medical officer; it is filled in in his presence and kept by him.

8500. DEPUTY-PRESIDENT: This is the basis of the medical control?—

[Form to be filled in by applicants for employment with Lewis Berger and Son (Australia), Limited, marked Exhibit No. 21.]

8501. Is the company known as the British Australian Lead Manufactures Limited a company of Australian origin, registered in Australia?—It is registered in Victoria, where the head office is.

8502. I do not think you have given us any information with regard to its nominal capital, and the conditions of its financial affairs for the purposes

of registration?—That I cannot do; I have not got the information here; but that information can be obtained and given to you.

8503. Is there a Melbourne branch of the works?—No.

8504. The whole of the industrial operations of the company are carried on in New South Wales?—I mean to say, we have a paint factory in Port Adelaide—a subsidiary company, known as the Australian United Paint Company, that was taken over by the British-Australian Company two years ago.

8505. When was the company registered, and how long has the company been in existence?—In 1918; it might have been registered in the beginning of 1919; I am not exactly sure as to that.

8506. Will the company handle or treat zinc in any way?—Not until the other factory is established—not until the paint works are established.

Cross-examined by Mr. CONNINGTON :

8507. I think you suggested that in your opinion handling dry lead is more dangerous than any painting work with lead paint?—That is so.

8508. Is that a fair summary of your evidence?—That is correct.

8509. You insure your employees against accident, do you not?—Yes.

8510. And against sickness?—If in connection with lead.

8511. Then you insure your employees at the Accident Insurance Society?—Yes.

8512. You see that schedule of rates, Exhibit No. 19?—Yes.

8513. Mr. MANNING : I have just been told that those rates have nothing to do with it.

8514. DEPUTY-PRESIDENT : It was on that point that I was going to ask for further information.

8515. Mr. MANNING : They were put there, I understand, for comparison purposes.

8516. Mr. CONNINGTON : What is the rate fixed there for factory workers amongst the dry lead?—There is no rate.

8517. What rate are you paying?—22s. 6d.

8518. Is not the rate there for factory workers 22s. 6d.?—Yes, but not in dry lead.

8519. In lead, is it not?—Yes; in lead, but that covers a lot more than dry lead.

8520. It covers the lead workers in your factory, does it not?—Yes.

8521. There is a section of your factory, which you call the lead department, I presume?—The whole of it is the lead department.

8522. However, your rate is 22s. 6d. ?—Yes.

8523. Will you look at the painter's rate and tell me what it is ?—26s. 6d.

8524. If working with dry lead is less dangerous than working as a painter, how do you explain the fact that the rate is lower ?—I should say that a factory worker is not liable to fall down from a ladder, nor is he liable to fall from a scaffold, which would make a considerable difference.

8525. If you will look at the bottom you will find the plumber, which rate is lower still ?—Yes.

8526. How do you explain that ?—I suppose for the very same reason, that the plumber is not working in such dangerous positions as a painter is in painting the window sashes.

8527. You employ carpenters at your works, do you not ?—No.

8528. The last rate we had for carpenters was 30s.; that was given in evidence here. Can you explain why it is that a carpenter is 30s., as against 26s. 6d. for the painter ?—I should still say that in the carpenter's work

there is a greater risk, owing to the fact that he is working on roofs and that sort of thing.

8529. And your same remarks would apply to the bricklayer, I presume ?—I should think so. I am not putting myself forward as an insurance expert.

8530. I know; I am only asking what opinion you have formed on looking at the rates——

8531. DEPUTY-PRESIDENT: You see Mr. Connington, insurance is not in respect of the same risks when industrial diseases are, in the one case, mixed with industrial accidents, and, in the other case, are not. For instance, the main risk with the lead worker may be the industrial disease. The main risk with the painter may be the risk of accidents connected with his ladder work and his work in elevated places. I tried to get some information on this from the insurance people, but I do not think that I succeeded particularly well.

8532. Mr. CONNINGTON: I have been trying to figure out the reason for this low rate, and I have come to the conclusion that it is——

8533. DEPUTY-PRESIDENT: Do not give us your conclusions now. We shall be glad to hear what inferences you can draw from the information later.

8534. Mr. CONNINGTON: That is the best you can do with that ?—I am positive that in lead-working under the present conditions the risk is so comparatively small that it would be a low rate.

8535. Supposing your company were running a paint manufacturing works without the precautions you have taken, would there be real genuine risk to the persons working in the trade ?—Well, there would be some risk, certainly.

8536. Would it not be fairly substantial ?—If you are going back to the times when all lead was dry, then I would say there was risk.

8537. I am not going back at all; we are in the twentieth century, and I am dealing with that. I ask you, do you really think that if you did not take the precautions that you are taking there would not be a substantial amount of risk ?—I would not say a substantial amount of risk. There would be a greater amount of risk than there is at the present time.

8538. A considerably greater risk ?—A greater risk.

8539. But you would not say a considerably greater risk ?—Not considerably greater.

8540. DEPUTY-PRESIDENT: Do not overlook the fact, Mr. Connington, that the witness has already told us that his company intends to manufacture dry paints. Although we are in an advanced state of civilisation we have not yet got away from the time when dry paints are asked for and are prepared for sale, so that there will be a risk of health injury from dust arising from dry lead in the time to come.

8541. Mr. CONNINGTON: Yes. Taking that into consideration would I be fair in assuming that your people consider, from a business point of view, that it is necessary to ask their employees all these questions ?—I think that if they did not consider it necessary they would not do it.

8542. The employee first signs this declaration ?—Yes.

8543. Then he is examined by a doctor ?—The doctor has the whole of that under his control.

8544. First the employee declares as follows ?—Yes.

8545. Then the doctor submits him to an examination ?—He might have been going on with the examination prior to that.

8546. An ordinary person would think that the declaration came first, but I do not care whether it came first or not. The thing is that he declares, then the doctor, to satisfy himself and to make assurance doubly sure, makes an examination ?—Yes, he makes an examination.

8547. DEPUTY-PRESIDENT: Does the witness understand you thoroughly, Mr. Connington? Is medical examination a condition precedent to employment?—Not necessarily. The man may be taken on on Friday morning, and on the following Monday he is examined.

8548. Once the man enters employment before examination, the examination cannot be regarded as a condition precedent to employment. He may lose his employment because it is ascertained that the condition of his health was unsatisfactory.

8459. Mr. CONNINGTON: Would you think I would be straining the position if I said in a careless way, "Oh, it is a condition of employment that men should pass the doctor?"

8550. DEPUTY-PRESIDENT: A condition of continuity of employment?—Yes; but it is not a condition precedent to employment.

8551. Mr. CONNINGTON: If I did say that, you would suggest I was making more out of the evidence than I was entitled to make?

8552. DEPUTY-PRESIDENT: I do not know that I would suggest that.

8553. Mr. CONNINGTON: I do not want you to think that I am complaining. The point is, that the rule is to compel men to submit to examination before they get employment. The mere fact that a man may sometimes run from Friday until Monday does not alter the fact that the rule is still there. It may be that the doctor is away at the time, or something like that.

8554. DEPUTY-PRESIDENT: I think the difference is this: Every man is subjected to periodical examination, so that once a man gets employment his chance is equal with that of every other man of continuing in his employment. If there is a condition of examination precedent to employment, then a man may never get on to the pay-rolls of the works at all.

8555. Mr. CONNINGTON: I did not have in mind that the witness gave evidence that it was the custom in his works to examine them periodically.

8556. Did you give that evidence?—Yes.

8557. I had missed that part of the evidence, otherwise I would not have persisted. In the event of a man stating that he had been suffering from lead-poisoning, would he be given employment?—That would be as the doctor said.

8558. That would be for you to say, would it not?—We would certainly have a say on that, but it would be on the doctor's recommendation.

8559. If a man says "I have suffered from lead-poisoning," and the doctor agrees with the man's statement, would not that affect the man's chances of getting employment?—If I stated my own opinion, I would say that it would debar him altogether.

8560. From employment?—No, not from employment, but from employment in the lead works.

8561. In the lead section of your department?—Yes.

8562. Then you have it divided into sections?—No, not at the present time, but there are store-room hands required; there are men who fill in tan bark.

8563. DEPUTY-PRESIDENT: And there must be factory clerks, we have heard of those earlier in the evidence.

8564. Mr. CONNINGTON: But for work in the lead department it would debar him?—I am not saying that it would, but if you are asking my opinion, I say it should debar him.

8565. I take it you would do what you thought would be right in such a case?—I certainly should.

8566. When you say you never met with a case of lead-poisoning?—I did not say that; I said I had met with one case of lead-poisoning, and one doubtful case.

8567. In thirty years ?—The longest case was thirty-five years ago.

8568. You have only met with one doubtful case ?—No; one case I am assured of was lead-poisoning; one doubtful case; and one case of painter's colic.

8569. You ask a newcomer, "Have you been employed in any process or work where lead or its preparation or compounds are used or manufactured ? If so, where and when ?" You no doubt have good reason for asking that question ?—Yes.

8570. Then you ask : "Have you ever suffered from colic or any other form of lead-poisoning ?" Would you suggest that those two questions were framed by anyone whose experience was the same as your own for thirty-five years ?—I should say that those questions were framed by one who has later experience in the factory than I have.

8571. You will admit that the framer of those questions had very good reasons or thought he had very good reasons for asking them ?—Yes.

8572. And his view, I should think, would be that there has been more risk of lead-poisoning than you have found to be the case in your experience ?—Yes, he would have had.

8573. Why do you ask this : "Are you a member of any sick club or benefit society ; if so, how many ?"—I cannot tell you that.

8574. Then the doctor's certificate runs : "General appearance; alimentary system; nervous system; circulatory system; urinary system: urine." I suppose testing the urine would be principally to discover if there was any lead in the system ?—I should think so.

8575. With regard to the work of an operative in the painting trade, I presume you are not conversant with his duties ?—Some of them.

8576. Sufficiently to answer questions about rubbing down and so forth ?—Yes, I have had some experience.

8577. You will admit, I suppose, that the rubbing-down process, which usually commences before the painting is done, and continues during the operation of painting, is a dangerous part of the painter's work ?—Not the second part. If you keep the first part separate, yes.

8578. Take the first part ?—Rubbing down preparatory to repainting.

8579. That is dangerous ?—There is a slight element of danger in it.

8580. You would not suggest it is very dangerous, would you ?—No, I would not suggest that it is very dangerous.

8581. Where does the danger come from ?—In the dust arising from the rubbing off.

8582. Take the case of a coat of paint which has been applied, and they rub it down with sand-paper ?—There is no dust from that.

8583. No dust comes off that ?—No; the adhesive matter makes it adhere to the sand-paper.

8584. Then why is it rubbed down at all between each coat if there is nothing to come off ?—I did not say there was nothing to come off.

8585. Why is it rubbed down ?—To even up the surface and to take the nibs off.

8586. And in taking off the nibs you consider there is no dangerous vapour ?—Vapour is quite a different thing. There is no vapour there.

8587. Nothing comes from the rubbing off ?—Yes.

8588. What is it that comes off ?—Part of the lead and part of the oil.

8589. And does not that mix with the air, and cannot it be inhaled ?—Oh, no.

8590. Do you say that definitely ?—I say that definitely, that practically no vapor comes off from that.

8591. And there is no danger from that ?—There is practically no danger from that operation.

8592. Then if the painters state that that is dangerous and that there is material which flies off and mixes with the air, you do not agree with them ?—I do not.

8593. You have never been a practical painter yourself ?—I am not a practical painter.

8594. Have you ever done any rubbing down ?—I have not. I might tell you that I was brought up in a paint shop.

8595. How long ago was that ?—It is thirty-six years ago since I left it.

8596. Do you think there is any danger to health from paint getting on to a person's flesh ?—No.

8597. None at all ?—No.

8598. No danger that way ?—No.

8599. Do you think that every painter is impregnated more or less with lead ?—I do not think so.

8600. There was statistical evidence here which went to show that, so far as painters and plumbers were concerned, the number of deaths per 1,000 of painters and per 1,000 of plumbers is much greater than in the case of the rest of the population from other causes—

8601. DEPUTY-PRESIDENT: I do not think that you are representing the effect of the evidence quite correctly there, Mr. Connington. It is the number of deaths from lead-poisoning in a 1,000 deaths, and in a 1,000 deaths of persons who follow occupations other than that of a painter.

8602. MR. CONNINGTON: That is what I was trying to say. If the evidence is that the number of deaths per 1,000 of painters is—

8603. DEPUTY-PRESIDENT: It is the number of lead poisoning deaths in a 1,000 deaths of painters compared with the deaths from lead-poisoning in a 1,000 deaths of other occupations. The Board's Statistician has told us that deaths from lead-poisoning occur in the case of deaths of painters to the extent of 16 per 1,000 deaths. Deaths from lead-poisoning occur in the case of deaths of persons other than painters at the rate of .4 per 1,000 deaths—that is, in 1,000 deaths of painters there are 16 cases of lead-poisoning, and in 1,000 deaths of persons other than painters there are less than one half of a case of lead-poisoning. Mr. Connington wants to know what you think of that comparative condition of affairs ?—Well, it is a very difficult question to answer that.

8604. MR. MANNING: Are you anything of a statistician ?—No.

8605. MR. CONNINGTON: Coming to the question of tuberculosis, would the fact that painters die more frequently from tuberculosis than other sections of the community incline you to think that the trade lent itself to that disease ?—Some part of it, yes.

8606. I am referring now to the house-painters—Are those only house painters ?

8607. Yes, we are only referring to house-painters.

8608. DEPUTY-PRESIDENT: But are they only house-painters ?

8609. MR. MANNING: I do not know what Mr. Connington is referring to, but I do not think that Mr. Sawkins was referring to house-painters only.

8610. DEPUTY-PRESIDENT: He was referring to house-painters and painters undefined. That must mean house painters and other painters.

8611. MR. CONNINGTON: I had in mind brush painters as distinct from a worker in a factory who mixes with lead.

8612. However, you would prefer not to draw any conclusions from that ?—I draw one conclusion from that. I do not know the statistics of any other

country. I know that the painters are certainly higher than other trades, but if the Painters and Dockers Unions' men are designated painters at their death, and they are recruited from all sorts and conditions of men, that certainly would, in my opinion, tend to raise the death-rate, even in tuberculosis.

8613. Have you any idea of the number of ship-painters and dockers who are operating in Sydney or in New South Wales?—Well, we have knowledge that there must be a fairly large number, as there are 500 working in one place at one time.

8614. Apart from that have you any information?—No, I have not the details.

8615. Would you be surprised to know that the Painters and Dockers are mostly designated dockers?—Yes, I would be.

8616. Do you say it would surprise you?—Yes.

8617. With regard to Bright's disease, if something similar happens in regard to that disease, would you give the same answer?—No, I would not. I would say that probably if those figures could be traced to their individual sources you would find that a large number of them would be coach-painters.

8618. Why would you expect more sufferers from Bright's disease amongst coach-painters than amongst house-painters?—Because they are constantly working with turpentine thinners.

8619. DEPUTY-PRESIDENT: Is turpentine used more freely in the coach-building trade than in other sections of the painting trade?—Yes, very much more.

8620. MR. CONNINGTON: I suppose you are aware that the house-painter carries out his work generally, and always, as far as I know, without the safeguards that you provide in the case of your factory workers?—He could not have them.

8621. Supposing you were employing painters, can you suggest anything that might, to some extent, go towards protecting them from the effects of lead poisoning—something on the lines you have installed in your own factory?—I certainly think that every painter should work in overalls, and that they should be taken off when he is taking his meals. My own opinion is that wet rubbing down should be principally used instead of dry.

8622. Anything else?—Cleanliness, which we enforce.

8623. Do you allow time for the men to wash and clean themselves?—Yes.

8624. You allow so much at dinner time and so much in the afternoon?—Yes.

8625. And time to take off the overalls and put them on again, I suppose?—Yes.

8626. Is there anything else you might suggest with regard to the house-painters or the coach-painters?—I think fashion is changing so much in the coach-painting that that danger will disappear, because so much of it is done differently now. The old system of coach-painting is going out and the motor cars are nearly all enamel.

8627. The trade is less dangerous than it used to be?—Yes, it will be much less dangerous. As turpentine disappears from the work so the danger will become less.

8628. Then I suppose that if all enamel were used the job would be comparatively safe?—Yes.

8629. DEPUTY-PRESIDENT: Is not turpentine used to thin enamels?—Very little. You add very little to it.

8630. MR. CONNINGTON: Enamel has a zinc base always, has it not?—Yes.

(Witness retired.)

LESLIE HALSE ROGERS, sworn, examined by Mr. MANNING :—

8631. You are a legally-qualified medical practitioner?—Yes.

8632. How long have you been practising?—Twelve years.

8633. All that time in the one place?—No, the last six years I have been in Ryde.

8634. Amongst other things, you are now the medical officer for Lewis Berger (Australia), Ltd.?—Yes.

8635. What are your duties as medical officer for that company?—My duties are to look after the men that have anything to do with white leads or paints.

8636. Do you examine them on their first being employed?—No, I do not always examine them before they are employed.

8637. When did you first examine the employees in that company?—I have an examination each week. One day a week I examine all the men who are employed either in the white-lead or paint departments.

8638. What examination do you put them through?—I examine them as regards their cleanliness, the state of their gums and teeth and hands, and their general bodily appearance, and if they have any complaints I make a thorough examination of them.

8639. May I take it that that weekly examination is merely a superficial examination for the purpose of finding out first whether there are any symptoms which require further examination?—That is right.

8640. During the six years you have been the medical officer of the company, have you come across any cases of lead-poisoning?—There has been one case of lead-poisoning since the works were opened in Rhodes.

8641. When was that?—That would be about two years ago.

8642. Do you remember the facts in connection with it?—It was a man named George Plinn, in the corroding shed. He is a foreman, and does not usually do any handling of the lead itself. On this occasion he was asked to clean out some pipes that had been choked, and he did not wear a respirator as he should have done, and lead-poisoning did occur in his case.

8643. He recovered after a while?—Yes, and he is at work now.

8644. DEPUTY-PRESIDENT: Did you know anything of his condition before he contracted this poisoning?—Yes, I had seen him previously. He had no signs or symptoms of lead previous to that.

8645. Do you attribute his illness then to a massive dose of lead?—Yes.

8646. His condition was almost that of an accident?—Yes, an acute accidental case.

8647. Mr. MANNING: I tender this witness now for the purposes for which he is required. I do not wish to ask him any further questions.

8648. DEPUTY-PRESIDENT: Is any attempt made by yourself to identify a pre-saturnine condition in the employees at these works?—I cannot say that it is. I mean, if I am asked to examine a man I go thoroughly into his history and make a thorough physical examination of him.

8649. But not a bacteriological or chemical examination of him?—Well, if there were any signs or symptoms presenting themselves I would go as far as a bacteriological examination and have a pathological report.

8650. That is, you would refer him to some pathologist?—Yes, if necessary.

8651. Do you make tests of urine?—Yes.

8652. For metallic lead?—No. The test of urine for metallic lead is rather a complicated chemical process, but, if necessary, we would do it.

8653. Do you make periodical tests of the urine to find sugar or albumen?—If there are any symptoms suggesting the necessity for it.

8654. That is, a man must be a suspect before you subject him to those forms of examination?—Yes.

8655. Has it ever struck you that there was any necessity for anticipating the incidence of lead-poisoning amongst any class of the men employed at the works? Yes. If a man shows any degree of anæmia, or any suspicion of a blue line in his gums, or any sign or symptom of lead, I go thoroughly into the case.

8656. Would not you rather regard the pigmentation of the gums as a symptom of existing lead-poisoning rather than as a symptom of a pre-saturnine disposition?—Of course the blue line on the gums is one of the cardinal signs of lead-poisoning.

8657. Exactly; it is a symptom of existing lead-poisoning?—Yes.

8658. But before the system may be regarded as poisoned there would be a breaching of its various defences, would there not?—Yes.

8659. Have you at any time regarded it as necessary to have the health of the men so surveyed as to indicate whether, in any particular case, there was a weakening of those natural defences?—Yes.

8660. Have you taken any steps, other than the superficial examination of the men for anæmia or that sort of thing, to indicate the condition of the health of a man?—Yes. If a man has any complaint he is referred to me, and I make a physical examination, and then if there is any weakness or tendency to lung change or kidney change, or anything like that, he is removed from the lead or the paint.

8661. Do you regard the conditions of work as obtaining there as being very dangerous?—No, not in the way the works are conducted.

8662. You think that there is such an allaying of the dust, for instance, attendant on the various processes, that the risk is not great?—I think if a man follows out the instructions he is given and thoroughly washes his hands and attends to his general hygiene there is very little risk of lead-poisoning.

8663. Have you, in comparing the conditions of the health of the men in the corroding shed and in the painting shed, observed that there is a better condition of health in one than there is in the others?—No, I cannot say that I have noticed any difference at all.

8664. That is, you would not regard the health of the men in the corroding shed as better than the health of the men in the corroding shop?—No, I could not say so.

8665. Or *vice versa*?—No.

8666. Do you regard the tendency of the employees who are under your care to suffer from minor ailments as being more pronounced than that tendency would be in the case of employees of other classes?—I think they are less likely to suffer from minor ailments on account of the instructions they receive as regards general attention to hygiene.

8667. Then we may take it from you that, comparing the employees in those two sections of Berger's works, with the employees as known to you in your general practice, they are as healthy as the men in other occupations?—Yes.

8668. Is constipation a very more prevalent thing amongst the employees of Lewis Berger and Sons, Ltd., than amongst other workers as known to you in your general practice?—I should say it was less, because we drill it into them that they must take aperients.

8669. How do you find the conditions of the mouths of the employees who are examined by you?—In the greater percentage of cases, when the man is first employed his mouth is not in a good condition. He is told that he must have his teeth seen to, and see that they are kept regularly cleaned. If he does not do so he is removed from the lead and paints department.

8670. Is that peculiar to the employees of this particular works or have you similar experience in respect of other employees?—I should say it was the case of the average workman.

8671. That the average workman is negligent so far as the condition of his mouth is concerned?—Yes.

8672. What do you say is the effect of such carelessness upon the general health?—It has a very deleterious effect.

8673. A markedly deleterious effect?—In some cases.

8674. Would carelessness in connection with oral hygiene tend to undermine the general health?—Yes, certainly.

8675. And tend to shorten a man's life?—Yes it may do so.

8676. Is it then your business to see that principles of oral hygiene are applied in the daily practices of the men at Lewis Bergers?—Yes.

8677. Would that account for an improvement in the general health of that section of the employees?—Yes.

8678. Can you indicate from your experience, reasons that force you to that conclusion?—You mean, you want to know what symptoms neglect might lead to.

8679. Not so much that, but have you seen improvement in the health of individuals because of the acceptance of your advice as to oral hygiene?—Yes.

8680. Have you seen it so frequently and so impressively that you can have no doubt about it?—Absolutely.

8681. I do not want references to individuals by name. Is the general physical vigour of the employees in the corroding and paint sheds comparable with that of men employed in other occupations?—Do you mean are they physically as fit!

8682. Yes, are they physically as fit as other men in what are regarded as ordinary healthy occupations?—Yes, as far as I have experience.

8683. Do you regard then the lead corroder's occupation as being an occupation that is dangerous, notwithstanding the precautions that may be taken?—I do not think so. From the experience I have had I do not think you can say it is dangerous.

8684. Then I gather from your evidence that you regard it as an occupation in which a man's health has to be safeguarded, but in which it can be completely safeguarded?—Yes.

8685. Can you say the same thing with regard to the men who are working in paints? I put my question to you in relation to the corroders, and now I want to repeat it with reference to the men who are engaged in the mixing and handling of paints generally?—Yes. We have not had any cases.

8686. Can you say from your medical experience that work in the paint sheds can be made absolutely secure so far as the health of those employed is concerned, by the use of certain precautions?—Yes.

8687. Have you amongst your patients generally had occasion to notice the condition of health of painters—I do not mean paint mixers or paint makers, but operative painters?—I have several private patients who are painters, coach-painters, kalsominers, and things like that. Their health has been quite on the average of that of the other workmen.

8688. DEPUTY-PRESIDENT: Your observation in connection with their cases, then, has been that they enjoy much the same kind of health as other industrial employees?—Yes.

8689. Have you in the course of your practice met any cases of lead-poisoning amongst painters?—Yes, I have seen one or two cases of lead-poisoning.

8690. In what period of time?—In the last six years

8691. ~~Place~~ Have you been at Ryde?—Yes.

8692. Mr. MANNING: I think you said you have only seen one or two ~~at~~ together, in the whole of your experience?—Yes.

8693. And they happened in the last six years?—Yes.

8694. DEPUTY-PRESIDENT: When you say you have met with one or two cases, you are referring to the whole of your medical experience, not the last six years?—No, in private practice.

8695. What were the outstanding features, the symptoms, of those cases?—One case I can remember had many of the cardinal symptoms—the blue line, anæmia, and general debility.

8696. No paralysis?—No.

8697. And were those patients subject to any periodical tests?—Yes, the urine was examined.

8698. For metallic lead?—Lead was found in the urine in one case.

8699. There were cases, then, in respect of which you can entertain no doubt at all?—No. There is no doubt a couple of cases were lead-posioning.

8700. Were they both cases of painters?—Yes, both house-painters.

8701. Can you remember the names of the two patients?—I can remember the name of one—"Hagerty," I think was the name.

8702. Mr. CONNINGTON: He is not on my list.

8703. DEPUTY-PRESIDENT: Can you recall the name of the other man?—No, I cannot.

8704. What would be the ages of those two patients? What was Hagerty's age?—I cannot say exactly, but he would be between 30 and 40 years. The other man I should say was something over 40.

8705. They would be in the prime of life as far as age was concerned?—Yes.

8706. Would not your experience tend to indicate that the disease must be exceedingly prevalent amongst house-painters, if you met with two cases in the experience of six years, and in a locality such as that in which you practice? I am assuming now that you practice in the neighbourhood of your home, Ryde?—Ryde is practically an industrial district.

8707. Has it been so for a long time?—As long as I have been there. It used not to be so, but it is now.

Cross-examined by Mr. CONNINGTON:—

8708. There are several doctors carrying on business in Ryde, are there not?—There are three.

8709. With regard to your work with Lewis Berger and Sons, I understand it is confined to the paint department?—To the paint and lead departments.

8710. DEPUTY-PRESIDENT: The witness said he examines the men in the corroding section of the works and in the lead manufacturing section of the works.

8711. Mr. CONNINGTON: I thought the doctor covered that in his first answer, when he mentioned the paint department.

8712. What number of men do you examine in this weekly examination?—I cannot tell you the exact number, but approximately about 100 men.

8713. Do you keep a record of your examination in each case?—I have it on the card system, there is a card for each man.

8714. He comes along and you look up his card and make an entry on it each week?—If there is anything to report, yes.

8715. You have not collated your decisions in each, have you?—I have the record of each man since he came.

8716. But you have not collated them into a record of your own, you have not a record saying "I have dealt with 40 cases or 5 cases," and—?—

I have a card for each man and if there is a symptom, or any complaint, it is entered on that card.

8717. Do you keep a record apart from that card?—No.

8718. You cannot tell us approximately whether on the 7th January you examined 7 people, and 5 of them you found to be sick?—Yes, I can. If you ask me did this or the other man complain of colic on the 7th January, I can look that up.

8719. What was the last day you visited the works for examination purposes?—Last Wednesday.

8720. Suppose I ask you how many men you did examine on that day, it would be approximately 100?—I examined all the men in the paint or lead departments, but the office could say if a man was at work on that day.

8721. How many men did you have to prescribe for, last Wednesday?—I have not brought my book with me.

8722. Have you a diary or a record which would show that?—I see what you mean. My assistant goes around with me and he makes all the notes for that day, and I enter my own notes privately.

8723. Then you can say you attended 5 on the last day, and 10 on another day?—Yes.

8724. With regard to house painters, have you many of them on your list privately? Of course, we know how you stand with the paint works?—There are several, but I could not say exactly how many.

8725. But you know you have certain private patients?—Yes.

8726. And have any of them been treated by you for lead poisoning?—No.

8727. Or for colic?—No, not these private patients.

8728. Without the precautions, it seems to me the firm recognises it is or may be a dangerous occupation in which one has to exercise great care. Do you think the work in the paint factory and the lead corroding department would be dangerous without these precautions the firm has already taken?—If a man is working in lead and does not take precautions, he has a chance of getting lead poisoning.

8729. Is it necessary to have a weekly examination? You have the safeguards and have done all which seems humanly possible to minimise the risk to the workmen. Then you have your weekly examination, have you not?—Yes. Is it necessary, then, that they should be examined weekly?—I would not say it is absolutely necessary.

8730. Still, you do examine them weekly?—Yes.

8731. For the men in the other departments there is no examination at all by you?—Only if there are any complaints of sickness.

8732. But you make no examination?—No, not a routine examination.

8733. Take the case of the house painters, would you say paint dropping on the flesh of a person would be likely to lead to lead poisoning?—Not if he takes the ordinary precautions of cleaning his hands properly.

8734. DEPUTY-PRESIDENT: I do not think the witness follows you, if I do. You want to know whether lead can enter the system through the skin. The witness may be under a misapprehension as to your question, because he recognises lead may enter the system through the alimentary system and may be transferred to the stomach by contract between the mouth and the hands.

8735. Mr. CONNINGTON: No, I did not go to that.

8736. DEPUTY-PRESIDENT: I thought you did not. You are asking the witness if the skin absorbed lead in the form of paint.

8737. Mr. CONNINGTON: I am not dealing with the question of whether he might inhale it now.

8738. DEPUTY-PRESIDENT: The question is whether lead can be absorbed in a paint medium through the unbroken skin?—Yes, it can.

8739. Mr. CONNINGTON: Of course, the danger would be small where a person cleaned the paint off quickly after getting it on to the flesh.

8740. With regard to the work of a painter, I suppose you have had no experience?—No, I cannot say I have.

8741. And with regard to rubbing-down, &c., you are not in a position to say anything.

(Witness retired.)

HARRY BROWN SEVIER, recalled, examined by Mr. MANNING:—

8742. I want you to take that insurance list and explain it to the Board?—This is a similar sheet posted to us, put up for my own information. I asked them to get out the information in regard to some other trades, but they misunderstood me and posted it on; and I did not like to alter it as it might be thought I was tampering with the exhibit. This is what is paid by our firm.

8743. DEPUTY-PRESIDENT: We notice in that list there are no persons described as lead-workers?—No; we pay on the wages of the men in the works, and the foremen, as factory employees.

8744. At what rate?—At 12s. per cent.

8745. It is very much less than the underwriters charge for the same workers?—Yes; it is much better.

8746. You are in a better position in that respect than your competitors in the trade?—Yes. I asked the young man who attends to the insurance and he assured me we have always paid the 12s. per cent. There was a notice on this list of those who have received compensation—there were nine in the white-lead department. They are all explained.

8747. That explains the second exhibit. The nine persons are persons who have acquired the right to compensation merely because of having met with accidents and not because of the development of any disease?—No; not any industrial disease. I would like to direct my evidence to the examination of the men in the paint works. Last time I was here I was under the impression when you asked me when the paint factory was moved from the old lead-mill, that the examination of the men was discontinued. But the Doctor has testified to-day that he still examines all the men in the paint department—all men who have anything to do with the handling of lead.

8748. Before you leave the question of the accident rate, can you appreciate the reasons for charging your companies 40s. per cent. of the wages of employees of contractors for cartage and labour transport when the next highest rate is in the neighbourhood of 12s. or 13s.?—I should say it is on account of the liability for accident. That includes "Third party accident, I believe. I am not positive, but I know we are insured against Third party accidents for our motor drivers, and that probably accounts for that higher rate. I might explain, if the Board cares to hear it, that our men would not feel any hesitancy in claiming their time off for compensation, as we paid for all time off, whether for a lesser period of incapacity, whether a few hours or a day.

8749. That is, the men are not restricted to legal rights?—No.

8750. If a man loses wages by reason of accident or industrial illness, his compensation is paid in respect of the time he is absent?—Yes, his full time.

8751. This notice was tendered by Mr. Manning. This is a paper I have marked Exhibit No. 18, and it is a copy of the notice that is exhibited in the works; and the company's purpose in exhibiting that notice is to inculcate principles of general hygiene in the employees in what are regarded as the dangerous sections of the work?—That is true. That is, of course, in the lead-mills and the corroding-sheds; all the floors in the lead-milling building and the corroding-sheds. I believe they are also posted in the warehouse, but am not positive. I cannot say if they are posted in the paint factory. They should be, I am sure, but I have not given it my personal attention to see that they were put up there.

(Witness retired.)

8752. MR. MANNING: I will be preparing Dr. Chapman to give evidence shortly, and would like him to see Mr. Sawkins first of all. I understand there will be no objection to our seeing Mr. Sawkins and asking him what figures he has arrived at on various things, as long as he does not mind giving them to us. It will save infinite trouble if it is done that way.

8753. DEPUTY-PRESIDENT: I can see no objection to conversations between scientific medical men and scientific statisticians. I am sure one is not likely to corrupt the other in any way. The Board has no objection whatever to the conference. I would suggest, if they are to be associated in consultation, they might also be associated in giving evidence. If you are going to call medical evidence to-morrow I think, perhaps, Mr. Sawkins might give his evidence immediately in advance of the medical evidence.

8754. MR. MANNING: That is what I think, because the advantage of the consultation is that Dr. Chapman will know beforehand of the evidence Mr. Sawkins is going to give and he can base his medical testimony on the figures Mr. Sawkins puts before the Board. It is difficult enough to one not accustomed to handle figures, without even any consultation with Mr. Sawkins. In the witness box it is almost impossible.

8755. DEPUTY-PRESIDENT: We appreciate that difficulty and think it well you should be thoroughly well informed as to the class of evidence Mr. Sawkins should give, so that you can cross-examine him to the best possible effect.

8756. MR. MANNING: It would do away with the necessity for cross-examination, because whatever figures Mr. Sawkins gives will be, I should imagine, figures we cannot assail, by the time we have discussed them with him. Dr. Chapman is very keen on that part of the question, too.

8957. DEPUTY-PRESIDENT: It is so important you should be thoroughly well prepared in that direction that, if it is impossible to get through with your consultation, and if it is convenient, the Board might well sit a little later to-morrow and give you the best opportunity of learning what is the result of the consultation between Dr. Chapman and Mr. Sawkins.

8758. MR. MANNING: I would be very grateful to have that consideration. I think, myself, it would take a little longer than the time available this afternoon, and perhaps if the Board can adjourn until to-morrow afternoon it will be time well spent.

8759. DEPUTY-PRESIDENT: Yes, the Board will meet you in that way.

8760. MR. MANNING: Thank you. I think it will result in the saving of time, and with two experts, such as Dr. Chapman and Mr. Sawkins, would be brought into line more easily. We had one consultation the other afternoon and I think it was very useful because they got down to hard facts. Since then Dr. Chapman has been able to formulate his medical evidence on the lines followed by the State Statistician.

8761. DEPUTY-PRESIDENT: No doubt he has been able to make it more brief and more pertinent.

8762. Mr. MANNING: It is an innovation, in a sense, but to my mind it makes confusion impossible. It is hopeless for anyone to start asking a gentleman like Mr. Sawkins questions about his figures, because it is difficult enough to follow them when you sit down in cold blood with plenty of time on your hands.

JAMES O'BRIEN, recalled, examined by Mr. CONNINGTON:—

8763. With regard to the evidence given by employees at Cockatoo, I think the impression is that it was the practice there to examine the men—the painters, and painters and dockers—weekly, or fortnightly at the outside?—Yes.

8764. Mr. CONNINGTON: Mr. O'Brien says that is not so, and in support of his contention he supplies a list of names of men who have worked at Cockatoo for various periods. This shows periods from three months, six months, up to thirteen months, and they were only examined very few times during the period of their employment. Mr. O'Brien says he can add to that list as many names as the Board wishes to have.

8765. WITNESS: I can double it easily. I only got those names at last meeting.

8766. Mr. MANNING: This is to rebut what?

8767. Mr. CONNINGTON: Some evidence by the doctor that he examined the men weekly or fortnightly.

8768. Mr. MANNING: In batches.

8769. DEPUTY-PRESIDENT: Of course, it may be directed to some specific statement of the doctor's, but I recollect the doctor's evidence and it was not that he examined every man every week.

8770. Mr. CONNINGTON: I am sure if you look up the evidence you will find it was that the men were examined—

8771. DEPUTY-PRESIDENT: I will lend you my copy of the notes, if you like to turn the evidence up and refer to it at some later date. What you are suggesting now is to take evidence by hearsay to contradict the direct evidence of the foreman painter and the doctor at Cockatoo, that the men were passed under review periodically. I cannot take that. Mr. O'Brien offers the information in good faith. I have no doubt, but at the same time we have direct evidence on one side, and the evidence ought to be equally direct which is offered in rebuttal.

8772. Mr. CONNINGTON: We will meet your wishes in that regard, but you see our difficulty.

8773. DEPUTY-PRESIDENT: Is it of any importance? Do these men suggest because they are not examined periodically the fact that they are suffering, or any person is suffering from lead-poisoning, is not ascertained? Does your suggestion go as far as this, that there are cases of lead-poisoning not disclosed at Cockatoo.

8774. Mr. CONNINGTON: No; but what I do say is, that the people at Cockatoo do not know whether there are men suffering as a result of their work, because they are not examined.

8775. DEPUTY-PRESIDENT: But the men at Cockatoo are entitled to compensation if they are suffering from lead-poisoning. Are they aware of the fact that they are suffering, or do they suffer in silence?

8776. Mr. CONNINGTON: I think I can go as far as to say this: the Cockatoo authorities are not in a position to state how many of the men

are suffering as a result of their employment; they are not in a position to say how many men are affected with lead because of their employment.

8777. DEPUTY-PRESIDENT: They have no case to establish. We have called them, and asked "What is the effect of your experience and observation at Cockatoo?" And they say, "We are observing through the eyes of a trained medical officer, and he has told us the effect of his observations." You now suggest the medical officer has mis-stated the case that ought to have been thoroughly well known to him, and that his evidence is not to be—

8778. Mr. CONNINGTON: I do not like to have to say it, but it may be, for all we know, we have misunderstood his evidence. I hope that is the case.

8779. DEPUTY-PRESIDENT: You had better not attack it until you have had it under review again. If you and Mr. O'Brien can confer upon the basis of the actual notes of the evidence, you may know then how far it is necessary for you to go.

8780. Mr. CONNINGTON: Dr. Roberts was asked:—

"Will you tell us the method of your periodical examination of the men who were handling lead?"

8781. DEPUTY-PRESIDENT: That is only the method of examination.

8782. Mr. CONNINGTON: The question went on:—

"First of all, at what intervals did you examine them?—Fortnightly. They would come along and pass through a passage where I had a very good light; I would examine their teeth, gums, eyes, and generally the mucous membrane, and ask each man if he had any complaints to make.

"In respect to his health?—Anything at all. Those who had any complaint were put on one side and we went into the matter thoroughly.

"What did you expect to find from your observation of their eyes?—The mucuous membrane, whether they were anæmic or not.

"The inside of the lids?—Yes. In the same way, looking at the gums inside of the mouth you get an idea whether a man is very anæmic, because it is shown there.

"Did you look for the lead-line on the gums?—Yes."

It all seems to go to show he made fortnightly examinations.

8783. DEPUTY-PRESIDENT: A good deal of that is with respect to the medical method, but what you want to get at particularly is, what group of men were examined? There was some cross-examination on that at a later time, I think, by yourself. However, we need not occupy the time of the Board with this at the moment. You will have a copy of the notes, and you and Mr. O'Brien can read the whole examination of Dr. Roberts and can then refer to the matter again. It may be that there is a loose system of sending a man up for examination and the doctor may be perfectly straightforward in the evidence he has given. He may see all the men who are sent to him.

8784. Mr. CONNINGTON: I have the idea that later the doctor said that during the last two years the examinations have not been so regular.

8785. DEPUTY-PRESIDENT: Look it up in the evidence and you can refer to it, if it is worth while, at a later date.

(At 4.10 p.m. the Board adjourned until 2 p.m. the following day.)

JOHN FLANAGAN recalled, further examined by Mr. Connington :—

8786. I think I had reached a point in your evidence when you promised to make investigations in the Randwick workshops, and also to compile a list of persons you came in touch with who were suffering, or were alleged to be suffering, from lead-poisoning or the effects of working amongst lead?—That is so. I went to the workshops one day during the week, and also to Eveleigh. I only got the names of two men at Randwick, and I got no further names at Eveleigh. That is, two men who had certificates from doctors that they were suffering from lead-poisoning.

8787. Have you the names of those men?—Yes. It is the same list as the Deputy-President perused last time, with the exception of the two top names.

8788. What are the two additional names?—Walworth and Reboul.

8789. Both those men stated they had certificates?—Yes.

8790. The other names on the list are the names you supplied us with on the last occasion?—Yes.

8791. Is there anything you would like to say with regard to your visit?—At Randwick the leading painter approached me and said he did not think the men were inclined to give much evidence, but that they preferred to be called. He, himself, was willing to be called; that was Mr. Harch, the senior painter, who has been there about thirty years. He said he would be more satisfied if the Board called him.

8792. Did you get anything else?—No.

8793. Mr. MANNING : What does he want to be called for?—He visited four doctors, one of them being Dr. Mills, of Macquarie-street.

8794. Does he want to make a general complaint against the medical profession?—I cannot tell you the conversation.

8795. Mr. CONNINGTON : None of them gave him a certificate?—No; he did not ask for one. He has lost no time.

8796. Mr. MANNING : Such people ought not to be treated as children. He is a responsible man. He is one who wants to tell us his experience with four doctors!

8797. DEPUTY-PRESIDENT : It is rather a remarkable thing that these men should have misgivings, very serious misgivings, with respect to the state of their health, yet they hide that fact from the foreman. I can understand that in some forms of private service it might be politic to do that; but would that consideration arise in connection with the Government service?

8798. Mr. CONNINGTON : I would be sorry to say I thought it did.

8799. DEPUTY-PRESIDENT : We have had the foreman of those shops here, and he professes to be entirely ignorant of anything but an excellent condition of health on the part of the employees.

8800. Mr. CONNINGTON : It is for the Board to determine on which side the truth lies.

8801. DEPUTY-PRESIDENT : It is not so simple as that. You want us to determine whether opinions formed by a layman in regard to the condition of his health are of sufficient importance to enable us to come to a conclusion that the use of white-lead is dangerous.

8802. Mr. CONNINGTON : No, I do not go so far as that. On the question of the general health of the men under the foreman, if a man tells you he is ailing, and has been continually ailing, that would make one inclined to think that the foreman's description of the health of the men under his charge was not quite in accord with the facts—at least so far as this particular man is concerned.

8803. DEPUTY-PRESIDENT: That might be a matter which might exercise our minds very greatly. A man might look quite well when he came here to give evidence. In fact, most of the people who have come here to give evidence have not borne the appearance of invalids at all—and the foreman may be impressed with a man's appearance.

8804. Mr. CONNINGTON: If it is looked at in that light, it is no use pressing the matter further.

8805. DEPUTY-PRESIDENT: Is it worth while calling a man from the Randwick workshops merely to hear he has a good deal of doubt with regard to his own health, and that doubt has not been confirmed by doctors?

8806. Mr. CONNINGTON: I do not think so. But Mr. Flanagan has brought along a lot of information, and it is for the Board to criticise it. Had it not been for Mr. O'Brien and Mr. Flanagan, the Board would not have heard many of the things it knows of now.

8807. Who is this other man, the foreman?—He is not foreman; he is senior painter.

8808. He says he has been to four doctors, but he has not had any certificate given to him?—I offered to call him at the expense of the Union, and he said he was afraid of victimisation and asked to be subpoenaed at the expense of the Board.

8809. DEPUTY-PRESIDENT: Every man who comes here is really subpoenaed, whether by one of the parties or not, because he is invited by his Union subpoena to attend.

8810. WITNESS: He is not a member of the Union, but will be called if the Board will hear him.

8811. DEPUTY-PRESIDENT: If you think he should be called and will not occupy our time improperly, we will be glad to call him. Mr. Connington must take the responsibility.

8812. Mr. CONNINGTON: I am prepared to do that. Once you know the facts as they are known to him, I will take all the responsibility after that.

8813. Is there anything further you would like to report?—I want to inform the Board I believe my progress has been blocked in every workshop, and it confirms my suspicion—the suspicion I had when I declined to give names the first time I was in the witness-box.

8814. What are your reasons for thinking that?—That the foreman went to the men, and intimidated the man I spoke to, in my opinion.

8815. Mr. MANNING: What on earth have we to do with this?

8816. DEPUTY-PRESIDENT: The witness is referring to a question I think I put to him in the course of his evidence in chief. I asked him if he could give any satisfactory reason for the men declining to give evidence before the Board as to the conditions of their health; and Mr. Flanagan then suggested they might suffer in their employment if they were to offer themselves as witnesses.

[After discussion, it was arranged that the witness should be allowed to give evidence with regard to the alleged intimidation. On the evidence being given, it was decided it should not be embodied in the official notes.]

(Witness retired.)

FIFTEENTH SITTING.

TUESDAY, 26 JULY, 1921.

(The Board met at University Chambers, Elizabeth-street, at 2 p.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

MR. MANNING: I might say that we have seen Mr. Sawkins and spent some time with him, and I understand he is now going to put the figures before the Board. As soon as they are officially before the Board, I think the next best course will be for me to call Dr. Smith and Dr. Chapman. As far as I know, there are no more witnesses, are there?

DEPUTY-PRESIDENT: I think that the Board ought perhaps to have some technical evidence on the chemistry of paints and varnishes. I think it is evidence that might be indirectly of considerable value. You remember the question has been raised in the course of the inquiry as to whether there is a chemical combination as between lead and the vehicle, oil, and a mechanical combination as between zinc and the oil. Matters of that kind might, I think, be dealt with by some chemist who could come here for a little while and give us his views on the matter generally. The evidence is not likely to be contentious in any way; it will be more or less formal. I imagine that any chemist who came and spoke on a subject like that would give evidence that would be absolutely reliable. I have not yet discussed the matter with my colleagues, but I have already caused Professor Eastaugh, of the University, to be asked if he will be prepared to give evidence. He is a scientist, a chemical man, and I understand that he is willing to give evidence.

MR. MANNING: I suppose that would not take more than a couple of hours.

DEPUTY-PRESIDENT: No; I should think it would take less than an hour.

MR. MANNING: And I suppose that will be pretty well all.

DEPUTY-PRESIDENT: We will have to close off the evidence that was promised to us by Mr. Hayward, of the Railway Department.

MR. MANNING: Yes, but we can go on, I think, and consider the evidence as practically finished and treat it as such, for the purpose of calling Dr. Chapman and Dr. Smith.

DEPUTY-PRESIDENT: Yes, I think so.

MR. MANNING: What I thought of suggesting was this, that when Mr. Sawkins has given his final figures—we have, of course, considered them in conjunction with Mr. Sawkins, and we know pretty well what the figures will be, although we have not got the exact figures yet—Dr. Smith and Dr. Chapman could give evidence. Dr. Chapman could be called to-morrow, if the Board thought proper. I thought of calling Dr. Smith first because that would be the logical order of things as far as I can see, but if the Board wants to sit to-morrow I can alter that arrangement by calling Dr. Chapman first. That is to say, give him to-morrow, and give Dr. Smith Thursday, or else leave the whole thing till Friday, and deal with them both then.

DEPUTY-PRESIDENT: The Board finds that it will be unable to sit to-morrow morning; it will be prepared to sit to-morrow, as from 2 o'clock.

MR. CONNINGTON: I would like to be free at 3.30 to-morrow, if possible.

DEPUTY-PRESIDENT: Have you a doctor ready to give evidence this afternoon?

MR. MANNING: Not this afternoon. I thought probably Mr. Sawkins would take a fair proportion of the afternoon. I do not intend to ask Mr.

Sawkins any questions, because we are not in a position to do so. The only thing I can do is, after it is all over, and after all those figures are given, to see how they work in with one another, and if we see any gaps in them to ask Mr. Sawkins if he can fill them up or explain how inferences can be drawn from the figures he has already given. I do not, however, anticipate that anything like that will be necessary. Perhaps Mr. Sawkins himself may want to make some explanation of the figures, and I thought his evidence would probably take the afternoon. I think Dr. Smith will take some little time, and so will Dr. Chapman. If the Board thought fit, we could sit to-morrow afternoon from 2 till 3.30, at which hour Mr. Connington says he wants to get away. If the Board thinks it is not worth while putting in an hour and a half on one day the matter could go over until Friday.

MR. ROUTLEY: What about Thursday? To-morrow is only Wednesday.

MR. MANNING: Yes, we could fill in Thursday with Dr. Smith; that would be very convenient, I think.

DEPUTY-PRESIDENT: Could you call both the doctors on Thursday? Could you put Dr. Smith in the witness box on Thursday morning, and Dr. Chapman in the box on Thursday afternoon.

MR. MANNING: I can certainly put Dr. Smith in the box on Thursday morning, but with regard to Dr. Chapman, I understand that he is subpoenaed to attend some trial at the Supreme Court on Thursday. Possibly Dr. Smith might take all day, but I think he is likely to finish in the morning. I should think he would be at least all the morning. Dr. Chapman does not know whether he will be free from the Supreme Court on Thursday, but I can find that out in the meantime. At any rate, if the Board wants to make an arrangement for Thursday it can say it will sit on Thursday, because Dr. Smith will be here then.

DEPUTY-PRESIDENT: I think we had better go on now, and with the information you have given us in our minds we can determine at the end of this afternoon whether we shall sit to-morrow afternoon or not. We certainly cannot sit in the morning, and in view of what you have suggested, we probably shall not sit in the afternoon. If we make the arrangement to adjourn until Thursday, we will expect you to be ready with the medical evidence on Thursday.

MR. MANNING: Yes.

DEPUTY-PRESIDENT: Could not some arrangement be made for Dr. Chapman to be in attendance at both places? We will, of course, give priority of claim upon his attention to the Supreme Court, but if he is with us and they can despatch a messenger to him here, there should be no difficulty in getting him into the witness box here in the matter of two or three minutes.

MR. MANNING: No; that is, provided he is only there for the purpose of giving evidence. Of course, if he is there in an advisory capacity, they often make an order that he can sit in Court until he hears somebody describe something or other. I think we can probably arrange that.

DEPUTY-PRESIDENT: I have found in my own case, when I have been subpoenaed to attend upon trials in the Supreme Court, that the party concerned in my presence, has always been able to give me notice and to bring me up for examination within five or ten minutes.

MR. MANNING: Yes, I think we can probably arrange that. At any rate I shall get in touch with Dr. Chapman in the meantime, and see it it cannot be done. In any event, Dr. Smith will be available, and his evidence will be fairly lengthy.

DANSIE THOMAS SAWKINS, previously sworn, further examined :—

8817. DEPUTY-PRESIDENT : You appear again to give the Board the benefit of some further work that you have done upon the statistical data ?—Yes.

8818. Will you proceed according to your own discretion in the matter ?—On the last occasion when I gave evidence, I left the death rates of painters and the relative frequencies of certain diseases showing a sort of conflict, and I have tried to resolve that conflict. The only way in which that could be done was by getting an approximation to the absolute population of painters at the census of 1911. I want to explain how the Statistician endeavours to relate the populations and occupations as disclosed by the census—that is to say, the living as disclosed by the census, and the dead as shown by the records of deaths every year. He tries to split them into the same classifications for the deaths as he does for the census, but it is very difficult to be sure that each set corresponds. In the case of painters, the deaths of painters that I have given hitherto relate to house painters, decorators, glaziers, painters undefined, and signwriters.

8819. What would the term “painters undefined” signify ?—Those whom we could not classify as thus stated or elsewhere.

8820. Would they include such people as painters and dockers ?—They would not if the painters and dockers were specified as such. There is a classification in the census of workers engaged in the construction of carriages and vehicles, and it includes these classifications :—Railway carriage, waggon, tram-car builders, coach, carriage, waggon, cart builders, bicycle, motor-car makers and repairers, perambulator, wheel, chair-makers, wheelwrights, and others.

8821. Does it not include carriage-painters ?—A coach-painter would, I believe, be put under that section as engaged in the construction of carriages and vehicles.

8822. Would not **he** be classified separately ? Should not there be a separate classification to indicate his inclusion ?—I do not think so. The deaths are not classified in the great detail in which the populations in the census are, and a coach-painter would naturally fall under that classification. Then there is the main section of persons engaged in the construction of houses and buildings, which includes house-painters, paperhangers, glaziers, and so on, and that is the big class to which I have referred in this section; and I have also included the signwriters. In addition to those, there are some stone-masons, bricklayers, carpenters, and painters, engaged in the construction of roads, railways, earthworks, &c.

8823. Engineering painters we can recognise as a distinct class; there are persons who paint viaducts when they are made of steel, and so on ?—If their classification was indicated carefully on the death certificates they would be put under those heads, as engaged in the construction of roads, railways, and earthworks. Their numbers, as I have said, are very small; in the census there were only about 1,000 of those, so it would be only a matter of a few hundred probably to go into the painters. Persons engaged in the building of ships, boats, and their equipment; that includes dock labourers. There is no special classification of ship-painters, and in any case that occupation has not been so important until recent years.

8824. I think there has always been a large group of ship painters and dockers combining the two. I take it they are labourers who use paints for a very considerable proportion of their time ?—Yes. I have just drawn attention to these things to indicate the difficulty of getting the absolute population of painters to which the deaths may be referred.

8825. I am a little surprised, seeing that in the house-building group there is a special classification of house painters, but there is not a special classification of car and waggon painters in the waggon-building group?—There probably ought to be. In spite of those difficulties, there are one or two other tests which I can apply to the death-rate which I have arrived at. I got a crude death-rate for all ages, 15 and over, of those house painters, &c., of 12·9. Then I looked at the death-rate in the class engaged in carriages and vehicles, and I saw that it was round about the figure 8, so that there is no possibility of them being loaded up. When one comes to consider the death-rates of carpenters and so on, there is no possibility of the carriage builders being loaded up with deaths of painters, which ought not to have been attributed to them.

8826. As a matter of fact, they would include the deaths of painters?—They should include the deaths of such painters as ought to have been included with them, but if they got loaded up with a lot of other painter's deaths which did not properly belong to them, the probability is that that rate would be high, but it is sufficiently low to indicate that they have not thus been loaded up, or in other words, these deaths on which I have based the 12·9 death-rate, have not had a number of deaths subtracted from them that ought to be in them.

8827. That ought to be in them, or that ought not to be in them?—That ought to be in them, and I am suggesting might have improperly been put in that other section in such a way as to load that up.

8828. MR. MANNING: In other words, there has been no improper subtraction.

8829. WITNESS: I have also considered the other classes. Their numbers are by no means so important as the class of carriage builders and so on that I have just mentioned, and they would not have very much effect. Then I have another way of testing the figure 12·9 as the death-rate of painters, decorators, and so on, for all ages, 15 and over, and I will explain that after I hand out this list [*handing a list to the Board*].

[Table of estimated death rates of painters and of males in all occupations. based on deaths in 1909 to 1915, assuming same age and occupational distributions as at census 1911, marked Exhibit 22.]

In Exhibit, No. 14 I gave the age constitution of house-painters, paper-hangers, and so on, and compared it with the age constitution of bread-winners, excluding persons of independent means, and persons of indefinite occupations and dependents. I have assumed that the age constitution of the population of painters through the years 1909 to 1915 was approximately the same as the age constitution of the population of painters at the census of 1911.

8830. That is really the median year?—Approximately the median year. The same thing applies to all occupations. In order to take in all those years 1909–15, I have assumed that the total population of painters grew during those years at the same rate as the total population of all occupations. Then I derived those death-rates for the different age groups.

8831. In Exhibit 14 we have the comparative population?—Approximately the comparative populations that relate to the deaths I have given in a previous exhibit. I gave the deaths of the house-painters, paper-hangers and glaziers without the sign-writers in the previous exhibit, and I had to include the sign-writers in order to get this 12·9. It does not make much difference but I have made that little adjustment. On those assumptions I have arrived at these death-rates in age groups, all ages 15 and over, painters 12·9; all occupations, excepting independent and indefinite and dependents 12·0.

8832. These are breadwinners in the second column?—They are all occupations except independent and indefinite, and, of course, excluding dependents.

8833. That would mean it would be a population of breadwinners?—With certain exceptions. Persons of independent means are usually classed as breadwinners, so that I have just used that term, "All occupations except independent and persons of indefinite occupation."

8834. The second column then includes painters?—Yes, it is the whole lot. For ages 15 to 19 we have 2·8 as against 2·0; for ages 20 to 24 we have 2·5 as against 3·5; for ages 25 to 29 we have 4·1 as against 4·3; for ages 30 to 34 we have 6·6 as against 5·0. Then there are great differences in the middle part of the table from 35 on to 70. The last four lines of the table are not very dependable, owing to the very small numbers of the deaths in those cases, but in any case they did not make much difference to the argument. These tables can be criticised through themselves in this way: the first three age groups give on the whole approximately the same death-rates. There is a bump in that 15 to 19 age group of painters, but if you combine that with the 20 to 24 age group, the average of those two, with the population of painters in the respective age groups, give very nearly the same death-rate for age 15 to 24 as that shown by all occupations. You can get a rough check by just adding them together; you will see it is 5·3 as against 5·5; the next line is 4·1 as against 4·3. If those figures were vastly different, I mean to say, supposing one found there was 50 per cent. difference in the death-rates of those ages, one could say at once that there must be something wrong with the table. There would not be time, or hardly time for an occupational risk to take its effect, and I do not suppose there is any reason for assuming that the young man who starts to learn the painting trade is a person of less than the average stamina and general health.

8835. If he is, it is remarkable that so far as the figures go they indicate that he dies less frequently than persons of corresponding ages not in that occupation?—They are approximately the same figures.

8836. I mean, if one is going to insist upon the suggestion that they may be men of less stamina than the average member of the community of the same age, then we are entitled to look at these figures?—Yes. Of course, there is a bump in that first line of 2·8. There is no doubt that ought to be smoothed out.

8837. Yes, but the bump is in the opposite direction as between 20 and 24?—Exactly. Those two ought to be taken together in order to criticise the table.

8838. I think your suggestion is fair, subject to such criticism as we may hear?—Yes. I think the tables are about right. Looking at the tables from age 35 onwards, you see that the death-rate is very much greater in the case of painters than in the case of all occupations. You have 11·1 as against 8·0, 14·6 as against 11·0, 21·5 as against 14·9, 30·8 as against 22·1, 43·2 as against 31·3, 68·7 as against 48·2, and the remaining sections of the table, as I say, are not so reliable as the other sections, on account of the small number of deaths in those ages; a few deaths one way or the other, would alter those figures considerably. However, it so happens that they do show this effect. So far as working out an expectation of life is concerned, those figures beyond 70 are not of very much importance. In order to get a general view of the effect of all those figures, I found out what would be the effect of those death-rates of the painters if applied to a population constituted like the general population of all occupations. One could make another comparison by applying the death-rates in all occupations to a population constituted as the painters are constituted.

8839. That is the obverse of what you suggest?—Yes. They give, roughly speaking, the same proportionate results. One could take any sort of standard population to work on that might be constituted intermediately to the population of painters and the population of all occupations, and apply the two sets of death-rates to them and compare the results. But whatever one does in order to get the true effect of the two sets of death-rates, one ought to apply them to the same constitution of population.

8840. What you suggest is that a direct death-rate of painters cannot be compared with a direct death-rate of persons in other occupations?—It is not a satisfactory way of doing it. In order to compare the death-rates of two countries the statisticians always work on a population norm; they get the death-rates in age groups, and then apply those death-rates to—

8841. To an arbitrary population that is likely to represent the conditions of each nation?—To one that is actually agreed upon at conferences of the statisticians which take place from time to time—an international norm or standard population. The results of applying those death-rates in age groups to the standard population give what they call indexes of mortality, which are much more satisfactory things with which to compare the relative mortality in two countries than the crude death-rates. Crude death-rates are not of very much use.

8842. And so you have derived here an index of mortality by using the statisticians' approved method?—By using that method I have found that the resulting death-rate of painters, found in the way I have described, would be 15·7 per 1,000 as against 12·0 per 1,000. I have not worked out what would be the effect of applying the death-rates in the right-hand column to the population of painters, but I imagine it would be about 10.

8843. The proportions would be about the same?—The ratios would be approximately the same, I think. I cannot guarantee that 12·9 or the 15·7, but assuming the 12·9 the 15·7 follows. That 12·9 may be 5 per cent. too much.

8844. What is the margin of error in the second case?—It is just the same margin of error. The 12·9 and the 15·7 are equivalent, as it were.

8845. But what is the margin of error relating to the 12?—There would be very little margin of error for that particular set of years on account of the numbers involved and the definiteness with which we can determine the fact that they are of all occupations. It is a different problem altogether. We know that everybody is of some occupation, so that the right-hand column is quite definite. The other, owing to the difficulties of the Statisticians in associating and correlating the deaths and the living, is a different matter.

8846. It imports error?—Yes. That is the reason why I say I cannot guarantee it within 5 per cent. If it were 5 per cent. too much, the index of mortality of the painters would be 15 per 1,000 as against 12 per 1,000. It is probably about right and is something in the neighbourhood of 15 per 1,000.

8847. What significance would you attach to a difference of that magnitude, supposing there is a difference of 3 per 1,000?—I was going to try and put the thing into perspective later on by some comparisons. In order to give another way of looking at that series of death-rates, I have computed some rough round-figure life tables to show what would happen to 1,000 painters of the age of 20 after a series of intervals of ten years. Supposing you had 1,000 painters of the age of 20 and you kept them painting and applied those death-rates to them, there would be approximately 965 left at the age of 30, 905 at the age of 40, and so on as shown by that table. That

round-figure life-table for all males is slightly different from the life-table prepared by Mr. Knibbs as the result of the last two censuses taken in 1901 and 1911. It is a little improved—not improved in technique or anything of that sort—but it shows a slight improvement in the mortality rates. Of course, the rates for those seven years, 1909 to 1915 showed an improvement on the mortality rates between the years 1901 and 11, and in this I have roughly represented that slight improvement in mortality; but there is very little difference between them. I have derived from that table, manipulated a little, the expectation of life at age 20 in the case of painters and in the case of all males.

8848. The discrepancy occurs apparently in this round life-table, as between the ages of 40 and 50?—Yes.

8849. And not earlier?—Not earlier.

8850. Whereas it is apparent in the preceding table as between the ages of 30 and 40?—I do not think so. There's not much difference up to age 39. Take the 2·8 and the 2·5.

8851. There is a considerable difference between 5 and 6·6?—That means, if 5 persons of other occupations die per year, out of 1,000 in that age group, $6\frac{1}{2}$ painters would die in the year. The effect of that in five years would be a difference of nearly eight. The 2·8 and the 2·5 are less than the 2·0 and the 3·5. That left about five more painters surviving at 30 than in all occupations. Those extra rates from 30 onwards, 6·6 and 6·9 as against 5·0 and 6·4 account for the difference approximately. As I say, they are only to the nearest five; they are rough tables, and you might get differences of two or three in the tables. I have only prepared them to show roundly the general effect. There will not be much difference at 40 on those rates between the population of painters and the population of all occupations. The differences occur later on. In any case, it will not affect the computation of the expectation of life appreciably. The difference is about three years in the average future lifetime of a man who has attained the age of 20—that is the expectation of life. With regard to that index of mortality, I have endeavoured to translate it into indexes of mortality from various causes in the cases of painters and others, and I now produce a table on that aspect. [*Table of indexes of mortality from various causes of males aged 15 and over, marked Exhibit No. 23.*] These are not actual death-rates. They are a subdivision of that 15·7 per 1,000 according to causes.

8852. Your proposition then amounts to this, that if there be an accepted death-rate of 15·7 per 1,000, then the relative frequencies as indicated in statistics would attribute to those diseases deaths to this number?—That is so. Those death-rates in the last table, if they were current amongst a whole population of breadwinners would produce deaths from various causes at these rates. That is really what it comes to. In the first line you have typhoid 0·30 for painters and 0·21 for all occupations; that difference is not appreciable and might arise through poor classification of the diseases. It is not a thing of which any account can be taken.

8853. We must not attach any significance to the difference?—No. Then you have tuberculosis (all forms) 2·01 as against 1·08. That is significant; it shows that the death-rate of painters from tuberculosis would, if it applied to the whole population, be considerably higher than that of the population.

8854. Almost twice as high?—Yes. The actual death-rate of the actual population of painters is, of course, rather less than that; it is 129/157ths of that, 12·9 being their actual death-rate. These are constructed on the basis of 15·7. If you take about 20 per cent. off this, you get the approximate

actual death-rate of painters. The actual death-rate of painters from tuberculosis would be 1·6, taking 20 per cent. off. Of course, if you take 20 per cent. off 15·7 you get 12·9 roughly. The total index from general diseases is 3·94 as against 2·99, made up practically of the difference arising in the case of tuberculosis. The index of mortality of painters from lead-poisoning is trifling, being ·25 per 1,000, which is equal to 1 in 4,000 per annum.

8855. Is there any direct statement as to the number of deaths from lead-poisoning in this class?—We had that in Exhibit No. 11. It gives eight deaths in six years of the New South Wales painters. The actual death-rate of painters from lead-poisoning would be about 1 in 5,000, if we take that 20 per cent. off the 15·7. The index of mortality is about 1 in 4,000. Diseases of the nervous system, 1·88 as against 1·15. Diseases of the circulatory system generally, 2·23 as against 1·95. There is nothing very noticeable in that. Diseases of the respiratory system, 1·13 as against 1·29; there is no further noticeable difference really until you come to Bright's disease, and there you have 2·38 as against ·66; that is more than three and a half times as great. In the case of fall there is considerable difference, but it is not a rate that counts very importantly; still it is a difference of ·4 per 1,000. If you wipe off that ·4 from 15·7 it becomes 15·3, which is a considerable reduction. On the whole, you might ascribe the difference between the 12·0 and the 15·7 to ·9 in the case of tuberculosis, ·7 in the case of diseases of the nervous system, and 1·7 in the case of Bright's disease; that makes 3·3 of it. Apparently the painters are more subject to accident than the general population. On the other hand, they are less subject to other general diseases. It looks as if tuberculosis and Bright's disease are the chief causes of the difference. There is also that rather marked difference in diseases of the nervous system. The Government Statistician did not separate the different sections of that system.

8856. He does not say anything about the disease members of that group?—No. Nearly half the deaths in that group in the general population occur from cerebral hæmorrhage and apoplexy; probably that is the main cause of the difference. At all events, it is a cause of portion of the difference in the case of diseases of the nervous system.

8857. I suppose it is a matter of diagnosis rather than a matter of statistics that one should find that there is but one death per 4,000 from lead-poisoning, and that there is a very extraordinary increase in the case of painters from diseases that may be associated with lead, such as tuberculosis and Bright's disease?—Yes. Of course I do not know how far tuberculosis and Bright's disease are due to lead. That is a matter for medical experts.

8858. Exactly. At the same time, it would seem that lead, if it kills at all, kills indirectly rather than directly?—That is assuming that the tuberculosis and the Bright's disease are due to lead.

8859. Yes, assuming for the moment that they are due to lead?—Yes.

8860. And kills in such a way that the ordinary medical practitioner is unaware of the fact?—Anyhow, he did not put them down on the death certificates as lead-poisoning.

8861. You see, there is a death-rate of 1 per 5,000 when the whole of the population is taken into account. It is not a death-rate of 1 per 5,000 in the case of painters only. I am looking now at Exhibit No. 15, in which you tabulated the causes of deaths of males of all occupations, aged 15 years and upwards, in the Commonwealth. You have given a table indicating the results over a series of seven years?—Yes.

8862. And the proportion per 1,000 is given in the final column?—Yes, 0.4.

8863. That is one per 5,000?—Yes, that is the relative frequency of lead-poisoning as a cause of death of males of all occupations.

8864. DEPUTY-PRESIDENT: Mr. Routley corrects me. The 0.4 is really one in 2,500?—That is, one in 2,500 of all the deaths is due to lead-poisoning.

8865. This is a frequency table?—Yes.

8866. It is not a death-rate table?—No.

8867. It is Exhibit 11, is it not, which contains the actual number of deaths?—Yes. About half way down the first page the total number of deaths of painters in six years is shown as 8. That is in New South Wales.

8868. What is the total number of deaths of members of the general population through lead-poisoning? Have you given us that information in a table?—

8869. Mr. MANNING: Is it not on the first sheet?

8870. WITNESS: That is of painters only.

8871. DEPUTY-PRESIDENT: Mr. Manning is right. In Mr. Smith's letter, at page 563, last paragraph, this occurs:—

"The table which I forward herewith shows that of 72 deaths including 4 children from lead-poisoning during the years 1909 to 1920, 15 or 16 were in occupations which did not involve any danger from the use of lead."

8872. WITNESS: That would be 6 per annum in the general population.

8873. DEPUTY-PRESIDENT: Yes, 6 per annum and something over 1 with painters. If you exclude the persons who died from lead who were not in any occupation which involved any danger from the use of lead? What would be the point of excluding them?—It would simply mean their occupations—

8874. That their deaths from lead-poisoning were entirely fortuitous; it does not follow because a man may have left the occupation?—That is the probability, I should say. He had been in an occupation where there were the occupational risks, and it may be suggested at some stage he took too much alcohol.

8875. That would make the average of 6 per annum for the whole population. Your total would show that in the case of painters there is an average of something over 1 per annum—8 in the 7 years?—That is the Government Statistician's table. It shows there were actually, in the case of painters, 8 deaths in the 7 years—of painters.

8876. So that there are 5 deaths per annum in the State from lead-poisoning in occupations other than the occupation of painting?—He said there were 72 altogether in 12 years. That would be about 6 a year and about 5 in other occupations. He gives a classification in that first exhibit, No. 11, of all the deaths of males in specified occupations during the 12 years. Then on the last sheet, 22 painters in 12 years which is about 2 a year.

8877. The figures do not seem to consist, do they?—They have been more in some other years than in those particular years that he took on the first table. He has 22 deaths of painters in 12 years, about 2 per annum. In taking the whole set of years 1909 to 1920—

8878. In all other occupations as totalled?—Yes, that would really mean about 4 in all other occupations and 2 of painters in the whole of those 12 years.

8879. Is there not a discrepancy between the two; are not separate years taken?—From 1909 to 1920 in the first case, and 1909 to 1913 in the other case. On account of the disturbance in populations during the war years I avoided going beyond the year 1915, as explained previously.

8880. I remember that. Will you proceed?—In order to get that rate of 12·9 in some sort of perspective I took out roughly the death rates in big occupational groups as a result of the deaths round about the year 1911; that is to say, 1910, 1911, and 1912, and they showed these comparisons :—

Professional class—Population, about 92,000 at the census of 1911; death rate, 10·6 per 1,000.

Domestic class—Population, 48,000; death rate, about 15·3 per 1,000.

Commercial class—Population, 236,000; death rate, 9·0 per 1,000.

Transport and communication—Population, 153,000 (I might say all these are for males); death rate, 10·0 per 1,000.

Industrial class—Population, 454,000; death rate, 16·5 per 1,000.

Primary producers class—Population, 570,000; death rate, 9·8 per 1,000.

The average of all those occupations was 12·5. I do not think that 16·5 death rate for the industrial class can be relied upon. I think it would be better to take the workers in transport and communications, and the industrial class, together, because I think there is a good deal of overlapping of these classes. The whole question of occupational mortality is a very difficult and a very unsatisfactory one. If it had not been unsatisfactory it would have been treated long ago in the official publications, but the statisticians will not commit themselves to occupational death rates. They make special investigations in special cases or leave it to outside authorities to make special investigations in special cases. There is so much risk in it that they will not publish opinions, or have not done so, so far. If you combine those two—the transport and communication, and the industrial classes—you get, weighting them according to their population, about 1 to 3, you get about 15·3 per 1,000 as the weighted mean death rate.

8881. And in the case of the painters?—The case of the painters does not seem to be an extraordinary one, even if you added in the commercial class, although I do not see why you should because it ought necessarily to bear a little less rate than in the class of industrial occupations, because there is less risk associated with it.

8882. If you were to combine the primary producers with the industrial classes, what would be the effect?—I do not think you ought to combine them. The population of primary producers is about 570,000, and the industrial class 454,000, so the average would be about $12\frac{1}{2}$; but there would be no reason to combine them, would there?

8883. Except that the primary producer is a labourer who buys a lifelong job. Certainly he does not work under urban conditions?—No. He is generally long-lived compared with other sections of the population.

8884. But he is undoubtedly a labourer?—Yes, some of them. Does the Board remember we found recently that there were not in New South Wales more than about 30,000 permanent wage earners, so that you would be combining a large number of persons who are not wage earners, in doing that. Of course, already in the industrial class there is a vast number who are not wage earners. All the enterprisers would be included in that class.

8885. However, the population with which the case of the painter can be most favourably compared is the industrial population?—Yes.

8886. And comparison so made does not tend to distinguish the painter from the other industrial classes?—No, it does not. Even if, as I think you ought to do, you combined the transport and communication class with the industrial class, that is, if the population of those engaged in transport and communication—

8887. That would include all railway employees?—Yes.

8888. And of course the risks there of death by violence are exceedingly great?—Yes; so I think those ought to be combined.

8889. Will you go on?—With the idea of comparing painters in Australia with other advanced industrial unions I took from a recent publication (the “Mortality Statistics of Insured Wage Earners and their Families,” published by the Metropolitan Life Insurance Co. of New York), the following figures.

8890. What statistical authority stands behind their publication?—Dr. Louis Dublin, who is a very reputable authority in the United States on mortality statistics, and is recognised throughout the world as being an authority.

8891. Of world-wide repute?—Yes. This book is thoroughly reputable from the statistical point of view. I took out the death rate per 1,000 from all causes of white males insured in the Industrial Department of the Metropolitan Life Insurance Co. of New York, and I compared them with painters in Australia, as derived in earlier exhibits. I got the following comparison:—

Ag^s 15 to 24—The death rate of Australian painters is approximately 2·6. That of all the white males insured by that company, 4·8.

Ag^s 25 to 34—Australian painters, 5·2; Metropolitan white males, 9·2.

Ag^s 35 to 44—Australian painters, 9·0; Metropolitan white males, 15·9.

Ag^s 45 to 54—Australian painters, 17·6; Metropolitan white males, 23·6.

Ag^s 55 to 64—Australian painters, 36·0; Metropolitan white males, 40·0.

Ag^s 65 to 74—Australian painters, 85; Metropolitan white males 80.

The other rates for old men are approximately the same.

8892. Do I understand you to say, in the second case, all Metropolitan workers have been grouped?—All the white males insured in the Industrial Department of the Metropolitan Insurance Life Co. of New York.

8893. That is, white males of all occupations?—Yes. That is a population thoroughly representative of the industrial activities of the United States.

8894. Can you throw any light on the magnitude of that company's operations?—The figures are based on a total number of deaths of both sexes of 100,000 per annum. The total number of deaths of males in Australia is something of the order of 25,000 to 30,000 per annum.

8895. What is the industrial population of the United States?—I cannot say off-hand. The total number of deaths of males in 1911 in Australia was 28,000 nearly. This book represents computations done on an insured population three or four times as big, or about twice as big taking males alone. The author says:—

“The statistics, therefore, reflect the sanitary and social conditions prevailing throughout the industrial population of the two great national units, the United States and Canada. A few States are not included in this experience.”

He says again:—

“The figures are truly representative of the entire wage-earning population of the United States and Canada. The geographical range of the data is much broader than that of the Registration area established by the United States Bureau of Census for the collection of the Mortality Statistics of the general population.”

I think, if I remember rightly, the United States Registration area covers about 80 per cent. at the present time of the population of the United States, and only half its area. But I can get the exact percentages if you would like to establish the range.

8896. No, I think you have given us sufficient information?—So I think it is clear the death rates of Australian painters are vastly superior to the death rates of the wage-earning population of the United States as a whole.

8897. As insured?—Yes, as insured. Then I think it would be advantageous to compare death rates from the special diseases, tuberculosis and Bright's disease. In that same population treated by Dr. Dublin, the death rate from tuberculosis of all forms, of white males insured with the Metropolitan Life Industrial Department, over the age of 20 years, is three and a half times as big as the death-rate from tuberculosis of all males in Australia, and, therefore, about 75 per cent. bigger than the index of mortality from tuberculosis of Australian painters.

8898. There, of course, climatic conditions would have an important effect?—Yes. Then in the case of Bright's disease the death rate of Australian males over 20 years of age is about 0·8—I gave ·66 for those over the age of 15, but cutting out those from 15 to 20 it will work out to about ·8 over 20; and the index of mortality of Australian painters over 20 years is about 2·6 per 1,000. That is, the index of mortality. The actual death-rate of painters would be about 20 per cent. less. The death-rate of the white males insured with the Metropolitan Life Insurance Company's Industrial Department of those over the age of 20 was 2·0.

8899. That is strictly comparable, then, with the conditions of painters in the United States?—Yes, quite comparable. Take 20 per cent. off that 2·6, you get 2 as being about the actual death-rate amongst painters from Bright's disease, and that is comparable with, almost identically the same as, the death-rate of almost the whole industrial population of the United States. On the point of "expectation of life," I thought it would be as well to get some figures in order to focus that point of three years' difference between the painters and the average male of all occupations. The expectation of life of an Australian male at the age of 20—that is to say, the average future life time of an Australian male who has reached the age of 20——

8900. Do you propose to quote?—I am quoting now from Mr. Knibbs' Life-table.

8901. What is the title of the publication?—"Census of the Commonwealth of Australia, 1911, vol. 1," at page 329. The expectation derived by Mr. Knibbs from the mortality experience of the decade 1881 to 1890, and the two census at the end of that decade, was 40·6 years. From the mortality experience of the decade 1891 to 1900 it was 42·8 years. That is an increase of 2·2 years on the experience of the previous decade. From the mortality experience of the decade 1901 to 1910, it was 44·7 years, which I have noted as taking account of the improvement on the fourth sheet. So for the three successive decades we have 40·6, 42·8 and 44·7, an improvement of about 2 years per decade. The painters are, at the outside, three years less than the average.

8902. To begin with?—Yes, from that calculation I have made, but I think it is an outside figure. I will not guarantee it within something like 5 per cent. to 10 per cent. They are three years less than the average population. That is to say, they may be considered to be about a decade, or more, behind the average population. There has been an improvement in the expectation of life of males at the age of 20, of about 2 years per decade.

8903. To what extent would that expectation of life be affected by risks or accident in the occupation?—I could not say.

8904. In your index of mortality you have given the rate from violence in the case of painters at 2·18 as against 1·35 in the case of the rest of the occupied community?—Yes.

8905. So that must reflect itself appreciably in the expectation of life?—Yes. The increase of mortality is 15·7 as against 12, that is about 3·7. That corresponds to the difference in the expectation of life of three years.

8906. And the proportion that this cause bears to the total causes, would give an idea of its effect on the expectation of life?—Of course. it is a sort of compound interest question, and you could not apply those proportions directly.

8907. That is very interesting and valuable information? —Those were the expectations of life in Australia. I thought the Board might like to know something of the expectations of life in other countries. I am quoting from the same volume, page 343. The expectation of a man of the same age based on the mortality experience of 1901–1910 in England and Wales was forty-three.

8908. That is in all occupations?—It is of all males in the community.

8909. The whole population?—Yes. So were the last figures I gave the whole male population. Of course, the rates quoted are for the population over the age of 20.

8910. I take it there is a difference between the two populations. For instance, you have suggested practically that the term or heading “All occupations” would cover practically the whole population in New South Wales?—Yes.

8910A. But occupied persons do not represent the whole of the population in Great Britain, do they?—No; but even if one excluded, as I have done, the persons of independent means, it makes a very little difference to the life tables, because I have worked them out with the persons of independent means in, and with them out, and the difference is only a matter of decimal points.

8911. You cannot give us the expectation of life of painters in Great Britain, can you?—No, I am sorry to say I cannot. I understand the medical men will have a number of figures of that kind, and I think it would be hardly worth while my going into them. Those gentlemen will be quoting from standard authoritative publications, and it is no use duplicating the evidence. In the United States the expectation of life based on mortality in the same decade, 1901 to 1910, was 42·25, or 42½.

8911A. So that conditions generally are a little more favourable here than they are in either Great Britain or the United States?—Yes.

8912. That again may be due to the more favourable climate?—Yes. In Germany about the year 1900 the expectation was 41·2, which is rather less than that of the painters. I do not know whether it is worth offering any more of these figures?

8912A. DEPUTY-PRESIDENT: No, I think you have thrown a good deal of light on the subject of life expectations.

8913. WITNESS: I do not know that I have anything more to say. You might like to ask mesome questions and I can possibly prepare the information.

8913A. DEPUTY-PRESIDENT: Have you obtained any information with regard to the statistics of institutions, asylums, and hospitals?—I wrote to the Commissioner of Old-age Pensions, and he has no statistics or no records of the occupations of those persons who are given pensions by the Commonwealth for invalidity or old age; and he cannot help. The Prince Alfred Hospital authorities are preparing statistics showing the number of admissions, according to their occupation, during a number of years. I do not know whether we shall be likely to get much out of those. I understand that the system of recording occupations which is in existence at the hospital at the present time is not very satisfactory. Perhaps they have not the means to enable them to make a thorough record. I certainly think that if that side of things were better organised a vast amount of research into questions of occupation and mortality could be undertaken, especially if there was more agreement in the way of classification of disease by the medical authorities.

8914. It seems to me a matter of public interest that the records should be kept on some standard lines and as fully as circumstances will allow?—Yes. Of course, in mortality statistics it is a matter of great difficulty to get the history of the occupation of a dead man—much more so than in the case of a live man. Consequently, on the face of it, if you have got good historical records of the persons who are sick and treated at hospitals, you must have better evidence in that particular than you have about those who died. It seems to me there is more prospect of good results of research in morbidity in hospitals, than even in the mortality statistics.

8914A. Can you tell the Board what proportion of the community die in hospitals and institutions?—Roughly, I think nearly 50 per cent. die in institutions and hospitals.

8915. Then a hospital and institutional record should be a document of the utmost value in connection with mortality and causes of death?—Yes. If they had historical records of the occupations of all persons treated in hospitals even covering a period of five years preceding admission, that information would be far more satisfactory than any information the Commonwealth Statistician gets as a result of his records.

8915A. Or if they combined the morbidity record with the mortality record they could speak with respect to three-quarters, one might suppose, of the population?—Quite likely they could.

8916. It is regrettable the record is not kept?—It is only of recent years that the keenness of Governments and other controlling bodies to get occupational statistics has been very marked. Dr. Dublin's book is quite a recent one, and, as you know, most of the statistical literature of occupations that is of any value is quite recent.

8916A. Have you made any attempt to get information from the sanatoria with regard to the occupations and health of their inmates?—They have been written to, but we have not had any replies from them yet.

8917. Are you able to throw any light upon the probable alteration in trade designation, or occupational designation, of painters who may have retired from their trade?—No, I am not.

8917½. DEPUTY-PRESIDENT: Can the union throw any light upon the effective working life of a painter, and upon the question of what becomes of him after he ceases to follow his trade?

8918. Mr. CONNINGTON: Yes. We are going to put in a list of the last two years, of men who have left the trade.

8918½. DEPUTY-PRESIDENT: Have the union kept a record indicating what would be the average age at which retirement takes place?—

8919. Mr. CONNINGTON: No, we have no record at all of that. We have a rough record of men who have resigned from the union for the purpose of following other occupations. I was just going to level this criticism at Mr. Sawkins' figures—

8919½. DEPUTY-PRESIDENT: It would be better to put your difficulties to Mr. Sawkins in the way of questions, if you can.

8920. Mr. CONNINGTON: By selecting painters and comparing the death-rate amongst them as against the death-rate of the other portion of the community?—The whole of the community.

8921. Yes. The probabilities are that the painters' percentage will be greater than that shown by your figures?—You think the particulars I have got in this way will be a little too low?

8922. Yes. He changes his occupation. He may start in business or may drive a cart. He thinks he is being leaded, or is leaded—

8923. DEPUTY-PRESIDENT: If we had evidence or information to that effect we would be on firmer ground. Mr. Sawkins has taken us into his

confidence and tells us that the death-rate of the average industrial population is just as high as that assigned by him to the painters, but a good deal higher than that assigned by him to all occupations.

8924. MR. CONNINGTON: With regard to the deaths among the industrial population of America—well, there may be a hundred and one things to account for the deaths in America. Conditions there may be entirely different to what they are here in Australia.

8925. DEPUTY-PRESIDENT: Mr. Sawkins has given us some counter-active to that supposition in informing us of the expectation of life of the average American.

8926. MR. CONNINGTON: That may be, but we have the figures for Australia and subject to the criticism I have levelled at him—

8927. WITNESS: I really did not get an opportunity to understand your last criticism and I should like you to repeat it.

8928. MR. CONNINGTON: For the purpose of estimating the percentage of deaths per 1,000 amongst painters, you take the painters as a class and compare the deaths amongst persons so designated with the rest of the community designated and not specified?—I do not think there is any reason to suppose that that would give necessarily an inaccurate result because I base the population of painters on those, whatever their age, who were so designated at the census of 1911. If you would have me put in those deaths of persons who have left the occupation, and who when they die are no longer designated as painters, then I must also put into the population of living painters those who have left the occupation of painter and are alive, but are not any longer so designated.

8929. Not necessarily. Those designated at the census as painters may be properly included, but persons who have left the calling and have died—say, designated as carters—how could you possibly credit the figure dealing with painters with cases such as that? A man goes out of the industry altogether, or he comes into the industry as a painter, after the census was taken. You know nothing of him?—That is true, but then the painting industry in the same way would get additions from outside occupations.

8930. From your basis I admit the probability is that a number of persons will be entitled to be designated painters the week or the year after the census is taken. However, the period of time is nothing; it is the principle I am trying to illustrate.—That is always a difficulty in connection with occupations.

8931. MR. CONNINGTON: I am putting this to the Board to show how carefully one needs to be in forming a definite conclusion. I think particular effort has been put forward by Mr. Sawkins to get something definite from the most indefinite set of circumstances one could imaginè.

8932. WITNESS: Of course, I have taken the population of painters who were so designated at the census, as far as I have been able to, and taken the deaths of painters who were so designated from year to year as far as possible.

8933. DEPUTY-PRESIDENT: In death certificates?—Yes. Of course, there were persons designated as painters at the census who have since left the occupation. On the other hand, there may be persons who were not designated as painters who have joined the occupation since and have now died as painters.

8934. MR. CONNINGTON will understand it would be quite improper for the Board to assume that persons leave an industry because they are crippled by the conditions of their work.

8935. MR. CONNINGTON: I have not argued that.

8936. DEPUTY-PRESIDENT: No, but I want you to take that into consideration. If you exclude that supposition, then the migration from industry to industry must be the same in the case of the painters as in other occupations.

8937. MR. CONNINGTON: But the question does not arise in Mr. Sawkins' calculation because he is following one class.

8938. DEPUTY-PRESIDENT: Can you compare the conditions of painters, Mr. Sawkins, with the conditions of other classes of workers in such a way as will show us what is the probable effect of the handling of lead in its metallic form in the one case, and what is the probable effect of the handling of some other paint ingredients than lead in another occupation?—On that point I have asked the Government Statistician to make a tabulation of the deaths of plumbers similar to that which is made in the case of house-painters in Exhibit 11.

8939. I take it you expect to find from the condition of plumbers what is to be assigned as a cause of death to metallic lead as distinct from combinations of lead in paint material?—For instance, is Bright's disease due to lead? Suppose the tabulation made by the Government Statistician of the deaths of plumbers showed very much smaller death-rate from Bright's disease, then there would be some suggestion that the high rate of death from Bright's disease occurring amongst the painters was due to some other substance connected with their occupation, rather than the use of lead in their occupation. I think that may throw some light on the subject.

8940. MR. CONNINGTON: What is largely guiding me, without intending in any way to criticise Mr. Sawkins' work, to give some weight to the view I have put, is the figures in other countries where a more strict record is kept of the painting industry. Take, for example, as far as we know from the works which I will refer to later, the restrictions have always been limited or practicably limited to that section of the industry known as house painting. In other words, every figure which you will find in a medical work inclines you to think that the greatest danger of lead-poisoning is to be found amongst the house painters; and the greater proportion of those who are affected as a result of handling, using, or being associated with lead, come from the class known as the house painter.

8941. MR. MANNING: May I suggest that if Mr. Connington is going to make these wild assertions, he might go into the witness-box? I think it is a most improper thing for anyone to make a statement of that kind at this stage.

8942. DEPUTY-PRESIDENT: I take it from what you say, Mr. Connington, you propose to address us upon facts you are going to derive from medical works?

8943. MR. CONNINGTON: Not at this moment. I am merely endeavouring to show what was in my mind at the time I asked this question.

8944. DEPUTY-PRESIDENT: Now is your opportunity to put those facts before Mr. Sawkins in order that they may be commented upon from a statistician's point of view. You will shortly have the opportunity to put them before medical men, so that they may be commented upon from a medical point of view. But do not think that those facts are sacrosanct and can be given to us in lieu of evidence, in your address.

8945. MR. CONNINGTON: I leave the Board the unenviable task of determining between the medical authorities.

8946. DEPUTY-PRESIDENT: If you wish to quote, as against the statement of that medical authority, the statements to be found in the medical books, you must quote them while the witness we call is in the witness-box. If

your quotations are to have any effect on the minds of the Board, they ought to be disclosed to the witness in order to be properly commented upon by persons of medical knowledge.

8947. MR. CONNINGTON: I am prepared at any time to put the opinions of the doctors from the various works I have, before the Board's medical witness. In common fairness I feel that ought to be done, but I was of the opinion that the Board would prefer to be referred to the different authorities when I was making my address.

8948. DEPUTY-PRESIDENT: Yes, but do not assume the Board will accept what is in a medical text-book merely because it is there.

8949. MR. CONNINGTON: I hope I have not given you the impression that I for a moment considered doing anything of the sort, because the Board has the unenviable task of deciding between recognised authorities—who is right and who is wrong.

8950. DEPUTY-PRESIDENT: You have these things prepared for use in your address. I adjure you to disclose these matters while we have Mr. Sawkins and a medical witness before us, in order that we may have directed at your facts and figures such criticism of a scientific kind as is available to us through those witnesses.

8951. MR. CONNINGTON: I never intended for a moment that any authority I quoted was to be taken by the Board without question, because probably other authorities will be quoted, each of them as of high a reputation as another. The Board has the unenviable task of doing the best it can as between two recognised authorities who differ on the same subject.

8952. DEPUTY-PRESIDENT: I am suggesting to you that those two authorities should be brought into touch with one another. That is, the books should be disclosed to the doctor who is to be called here to give evidence *viva voce*, and by that means we will have the value of the statements in the book discussed, not only by Counsel, but by expert medical witnesses.

8953. MR. CONNINGTON: I am glad the question has arisen. I have endeavoured to refrain from cross-examining medical men as I have felt I was not in a position to ascertain their views, as between themselves and my authorities.

8954. DEPUTY-PRESIDENT: If you read in an approved medical work that a certain opinion is held in approved scientific circles, and that opinion is not held here, you have a perfect right to inform a witness you have occasion to question the statement he is making.

8955. MR. CONNINGTON: I shall be happy to carry out the work I have to perform as you wish it.

8956. DEPUTY-PRESIDENT: I personally shall be glad, and I think my colleagues are with me, if you will give the medical witness the Board calls the opportunity to discuss the medical facts you propose to address upon. You have raised an important matter. The question is, to what extent will migration from occupations vitiate occupational statistics when comparison is made between them and statistics affecting the whole community?

8957. MR. CONNINGTON: I will work that out to the best of my ability from the figures I have in these works, which I intended to quote to the Board later. I will do my best in that way to put forward another set of figures according to some other persons finding, and, of course, you can only do the best you can with that. I cannot help you more than that.

8958. DEPUTY-PRESIDENT: We cannot settle the question by assuming there is a greater migration from the painting industry than from any other.

8959. MR. CONNINGTON: That is not the point. Mr. Sawkins selects the painters as against the rest of the community. The question of migration from any other section does not come into consideration at all.

8960. DEPUTY-PRESIDENT: I quite follow you there. But the criticism you direct at Mr. Sawkins' comparison of the conditions of painters with the general community is the same sort of criticism which must be directed at the comparison of another occupation with the general community.

8961. Mr. CONNINGTON: Where you select any particular occupation, yes. That would occur in any such case, and I thought I would mention it while Mr. Sawkins was before us.

8962. In Kober and Hanson, page 515 [*it is (c) of that document I put in, third paragraph.*] That seems to give statistics very carefully checked. It reads:—

“Hoffman's Industrial Insurance statistics say that of 2,783 deaths amongst painters, 23.8 were caused by tuberculosis.”

That is much higher than anything you have shown here, is it not?—I have worked it out, I think, in *Exhibit 15*. It is 5 per 100 all occupations, 13 for painters, from tuberculosis. We get 13 per cent. of the deaths of painters as from tuberculosis in all forms, and 7 per cent. were from diseases of the respiratory system—a total of 20, as against, in Hoffman's Industrial statistics, 34 per cent. practically.

8963. Can you say whether they were statistics properly kept, or deductions made from returns?—I think we have a copy of Hoffman's statistics in the library. Dr. Hoffman is a strictly reputable authority in America, on occupational statistics.

8964. He goes on to say that 9.9 per cent. is the figure from other respiratory diseases, making a combined rate of 33.7 per cent. from diseases of the respiratory organs. The rate from lead-poisoning was 1.5 per cent. That would be 1.5 per cent. of the deaths, would it.—Yes. That is just about the same percentage as we have here, 1.6, on *Exhibit 15*.

8965. DEPUTY-PRESIDENT: That is the difference between 15 per 1,000 and 16 per 1,000.

8966. Mr. CONNINGTON: From heart, kidney, and liver diseases Hoffman's figures are 25.9?—30 per cent. is the Australian figure.

8967. From heart, kidney, and liver diseases 12.9?—The heart here is 11.2 per cent.; liver 2.9 per cent., and kidney 16.5 per cent., so it is much higher than the American case.

8968. That is, 30.6 as against 25.9?—Yes.

8969. It is in tuberculosis that the American percentages seem to be higher?—Yes.

8970. DEPUTY-PRESIDENT: We have found already, from what Mr. Sawkins told us, in the case of the general population, the death rate from tuberculosis is very much higher in America than here.

8971. WITNESS: Three and a half times as much in the industrial population.

8972. This is 33 of a section of the people, the painters?—Yes, the painters.

8973. Mr. CONNINGTON: And of the deaths, 33 die from specific?—

8974. DEPUTY-PRESIDENT: You are talking about death frequencies now, not death rates.

8975. WITNESS: That paragraph refers to frequencies entirely.

8976. DEPUTY-PRESIDENT: These percentages are referable to the 2,783 deaths; not to the living men who die, but to the deaths. It is not a particular living unit, but particular dead men. Take the 33.7—that means 900 of the 2,783 deaths were attributable to respiratory diseases.

8977. Mr. CONNINGTON: That is fairly high, one third, is it not?—That is higher than it is in Australia for painters. We have 12.8 plus 7.2. That is 20 per cent. here for painters.

8978. DEPUTY-PRESIDENT: That would be accounted for by the general statistics Mr. Sawkins has already given us. Tuberculosis is three times as lethal in the United States as here, amongst the insured industrial population.

8979. WITNESS: It is about twice as high amongst the general male population of the United States.

8980. Mr. CONNINGTON: However, there are a number of passages to be taken from the books on those lines.

8981. DEPUTY-PRESIDENT: I am sure Mr. Sawkins will extend to you the same courtesy as was extended by him to the doctors. If you like to confer with him as to statistics which you have, it may be discovered that it is not necessary for you to examine him formally on the matter.

8982. Mr. CONNINGTON: It might be much easier to follow him than when giving his evidence.

8983. WITNESS: I would say generally with these figures they are directly comparable with figures in this country, taking account of the difference in the tuberculosis rate. The percentage is higher in case of tuberculosis and respiratory diseases generally, and it is smaller than it is in Australia in cases of heart, liver and kidney diseases together. So they are strictly comparable.

8984. Mr. CONNINGTON: You are working on 2,000, and I am working on 2,700. However that can be gone into later.

8985. DEPUTY-PRESIDENT: I think we had better arrange to continue the inquiry on Thursday. We may regard Mr. Sawkins' evidence as temporarily concluded. If Mr. Connington would like, as the result of his conversation with Mr. Sawkins to have him back in the box again, Mr. Sawkins will no doubt be ready to go into the box on Thursday.

8986. Mr. CONNINGTON: I can put my figures before Mr. Sawkins, and he can see in a moment the effect of them and work the differences, if any, out and put them before us in a concrete form, easy to understand.

(At 4.10 p.m. the Board adjourned until 10 a.m. on Thursday, 28th instant.)

SIXTEENTH SITTING.

THURSDAY, 28 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY.

MR. COOPER.

FREDERICK ALLDIS EASTAUGH, sworn, examined by the Board:—

8987. DEPUTY-PRESIDENT: What is your position at the University?—My title is "Assistant Professor." There is no subject attached to my title. I have charge of the assaying, practical metallurgy, and engineering chemistry.

8988. How long have you held that title?—I have held the title for a little over a year, and the position for nearly 15 years.

8989. Is industrial and technical chemistry within the scope of your interests?—Yes, certainly. Engineering chemistry is merely another title for that.

8990. With reference to the matter that this Board has in hand at the present time, the Board has been asked the following question:—

"Is white-lead, as used in the painting industry, so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments?"

In pursuing its inquiry into the matter to enable it to answer that question, the Board has met with one or two difficulties of a technical kind upon which a chemist should, we think, be able to give us a considerable amount of assistance. We have, therefore, invited you to attend for the purpose of providing us with the assistance we require. The matters that particularly cause us concern are the physical and chemical properties and functions of paint compositions. For instance, the question whether there is a chemical reaction between ingredients of paints, or merely a physical combination, is one that is of some importance to us. Can you tell us whether there is in a paint composed of the ordinary medium of linseed oil, hydrated carbonate of lead, and the ordinary trade dryers, a chemical action as well as a physical combination?—In my opinion there is certainly some chemical action; but the whole mass is not one chemical compound.

8991. Would you say that the craftsman is using a medium that he can understand without any specific instruction as to the chemical effects of the paint composition?—I am afraid I must talk around that somewhat, if I may. The wide point, in my opinion, is this: That, from a chemical point of view, it is very difficult owing to the fact that you are not dealing with pure substances or definite chemical compounds. Linseed oil is by no means constant in composition. The best analyses published will give you limits—so much linic acid, and so on. I believe that even the white-lead varies in the ratio between the hydro-oxide and the carbonate, and, although it would be quite possible, I presume, to accept certain average compositions as being the standards, yet, from a definite scientific and chemical point of view, the small variations may have a bigger effect than one would expect from their absolutely arithmetical amount.

8992. Would that alter the film in any appreciable way?—It might, considerably.

8993. So with certain materials, the film which is applied to a surface which is just painted would be different in nature to a film which would be applied with materials of the same designation but of another chemical character?—Yes, certainly.

8994. What is the most important of the ingredients from the chemical standpoint which are compounded in the ordinary paints?—Taking medium into account as well?

8995. All the ingredients—dryers, medium and paste, with thinners as well?—I should say you could find substitutes for everything, probably, but a drying oil.

8996. That you call the principal medium?—Yes; I should think so.

8997. What function, from a chemist's point of view, has that medium—you might give your answer with reference to one or both, as you see fit, as long as you indicate to us that you will give your answer with respect to paints in one case and varnishes in the other case?—I had very few minutes to think this over, and I thought it might help if I compared the paint to a very rough incrudimentation of paperhanging. We hang paper inside our walls for various purposes, and, where that kind of covering is by no means possible, we hang resistant decoratives, and so on—pieces of substance for similar purposes.

8998. Which we manufacture on the spot?—Which is put to us in the form of paint. What we hang on are the various solid particles, by means of the medium which takes the place of the paint for the paperhanger.

8999. We really hang a sheet of metal where otherwise we would be hanging a sheet of vegetable matter?—Precisely, or some other metallic substance.

9000. With respect to the nature of these mineral bodies which are so applied, is there an important chemical difference between hydrated carbonate of lead, for instance, and zinc oxide?—They are both basic substances and

to a certain extent alike. The effect of their combination with free fatty acid which may be in the linseed oil, or free fatty acid formed in the drying oil, I am of opinion would be different in its physical characteristics.

9001. Would you call saponification a physical or a chemical change?—Chemical.

9002. Is there the same chemical effect in each case?—The same chemical effect is liable to take place.

9003. You think there would be saponification with the zinc oxide as well as with the carbonate of lead?—To a certain extent, yes.

9004. Are not specific chemical changes necessary to establish the film?—Yes.

9005. What would be the nature of those?—The oxidisation of the medium.

9006. Not the oxidisation of the pigment?—Oh, no.

9007. Is there an oxidisation of the pigment, or a chemical change in the pigment?—It probably does not happen. If it does it is not essential.

9008. So the carbonate of lead remains carbonate of lead?—Yes, for the most part.

9009. And zinc oxide remains zinc oxide?—Also for the most part.

9010. And the linseed oil changes its character chemically, and becomes, what?—It is a very complicated compound indeed, known as "linoxin."

9011. What is the effect of the decomposition of the linoxin?—The effect of it is that the paint powders and falls away. The coating is spoilt.

9012. That is, the medium disappears?—Yes.

9013. And the metal, or mineral, is left naked?—In part, of course. Part also falls off.

9014. That is not held in suspension any longer?—That is so.

9015. Part of it gravitates to the ground, and what remains is left loose?—Yes, it is loose.

9016. What is the function of turpentine chemically, in the combined mixture?—It has not much chemical effect. I should say there is practically none.

9017. Can it be dispensed with, do you think? It is a thinner in the main, is it not?—Yes, it is a thinner. Painting would be far less convenient without it, and more costly.

9018. In what way would the convenience of the paint be affected?—You are able to apply the coat sufficiently for it to be worked with a brush easily, yet it dries sufficiently quickly to stay where it is put.

9019. Could not the same effect be produced with any evaporating agency—take water, for instance?—Water would not form the homogenous mixture that the medium and pigment, with turpentine, does. That would be the first objection.

9020. Turpentine, I take it, is a solvent of the medium?—Yes.

9021. That has a physical effect and not a chemical effect?—Precisely.

9022. In the case of drying oils which are added to the paint, do they produce a chemical effect?—Certainly.

9023. An effect different from that produced by turpentine?—Oh, yes.

9024. What would be the nature of the effect the dryers would produce?—They act as carriers for the oxygen.

9025. That is, they incorporate potential oxygen in the composition before it is applied?—No, not so much that. They are essentially catalysts which are able to take the oxygen say from the ordinary atmosphere, and pass it on to the oil to dry it, possibly suffering themselves no change in the process.

9026. Do they disappear from the mixture themselves or do they remain there?—They remain there.

9027. With the linoxin?—Yes, in the dry film.

9028. What would be the nature of the drying medium? From what source would it be derived?—The chemicals acting as the drying catalysts? They are generally oxides or salts of different metals, preferably a metal which can exist in two states of oxidation. It starts as the lower oxide and brings up oxygen from the atmosphere to the second oxide, and that passes on the medium.

9029. That helps to set the oil into a dry film?—Yes, certainly.

9030. And what is the effect, as a physical change, in the condition of the composition that is applied to the surface?—The final change is the result of chemical combination.

9031. Could those ordinary commercial dryers be altered in character in any way? Do you know what are ordinarily used as dryers?—Yes, there are quite a number of them, starting with cobalt and running through manganese, lead, and sirium—there is a very long list of them, and consequently any of those can be used. I have no doubt they vary very much in efficiency also.

9032. Lead is frequently used in the combining of dryers, is it not?—It is one of the commonest.

9033. If it were dispensed with would the combined substance be less poisonous?—Certainly it would.

9034. Would the dryer retain its poisonous quality after it had discharged its functions and dried the film. Would it lose that in the process of decomposition of the film?—As long as the lead did not disappear the toxic effect of the lead would be there all the time.

9035. What form of lead would be found in the dryer?—It is put in many forms.

9036. Not in one form particularly—not in the form of an oxide?—That is the cheapest and it is to be assumed is most commonly used. It is also put in as various organic salts.

9037. Are cobalt and manganese poisonous in the form in which they are used as dryers?—Not that I know of.

9038. Are they generally associated with lead; that is, is there a blend of manganese and cobalt with lead?—Yes, I think it is the practice to use both of them.

9039. How does water influence the film when it is produced with the agency of lead as compared with a film produced with the agency of zinc, we will say water in the form of rain. Is the film produced with lead more absorbent?—I am afraid I do not know at all. A lot would depend on the age of the film.

9040. What is terebene?—I suppose it is used as a substitute for turpentine. I really do not know how it differs from turpentine chemically. It is formed from turpentine by acting on it with sulphuric acid, and it differs from it materially by being optically inactive.

9041. Is its form changed so as to have qualities other than those possessed by turpentine?—I do not think so; not very different at any rate.

9042. Would a saponification of lead—would a lead soap, in other words, be more effective in a paint film than, say, a soap produced by the combination of the oils and zinc oxide?—I think it is.

9043. What would be the difference between the two?—Rather than say the difference I think I would rather say the effect. It seems to form a more elastic film.

9044. Would you indicate by that that it is a more useful film?—I think so.

9045. Now with respect to varnishes, is the varnish composition essentially different to the paint composition in respect of the matters we have been discussing?—Except for the absence of solid matter, I think that is really the only difference, in essence.

9046. So that the decomposition of varnish would leave no metal or mineral on the surface painted?—Except the amount of metal contributed by the dryer.

9047. Mr. MANNING: Where you mentioned the substitutes for all the ingredients of paints, with the exception of oil, I take it you merely indicated there that the other ingredients are interchangeable?—You will remember I said “a drying oil,” not specifying any particular oil.

9048. Leave out the oil. That is one of the ingredients of paint which you regard as essential?—Yes.

9049. And you said you could find substitutes for all the other ingredients, with the exception of oil?—Yes.

9050. I take it you merely mean to indicate there, as regards these other substitutes, that they are interchangeable, without indicating the degree of importance?—Yes, certainly.

9051. Mr. MANNING: I wanted to clear that up—merely that they are interchangeable and not as indicating any importance in regard to relative values.

9052. DEPUTY-PRESIDENT: Has the chemist any views as to the sinister character of the ingredients he uses, compounded in paints?—Of course, we all know that lead is poisonous.

9053. But I suppose many ingredients of paints are actually poisonous—that is, they are likely to be toxic if taken into the human body?—I do not know of any in common use which are as toxic as lead.

9054. Is the toxicity of lead a menace to those who may be associated with the use of paints?—I cannot speak from my own knowledge except that I have had to wear masks when working in lead; but I have always been taught that scrupulous cleanliness is necessary.

(Witness retired.)

9055. DEPUTY-PRESIDENT: I desire to inform the parties that two gentlemen have written letters to the Board indicating that they desire to be heard in connection with this inquiry. The Board's attitude to applications of that kind is invariably favourable. As it cannot indicate that it regards the information that it is likely to derive from such people as being of importance in the inquiry, it thinks that those who volunteer to help the Board should be encouraged rather than discouraged. At the same time, the inquiry has been carried almost to a conclusion, and the Board wishes it to be understood that it does not desire to unnecessarily re-open matters upon which it has taken a reasonable amount of evidence. However, the Board is prepared to inform itself with the aid of any person who is well disposed towards it and its work and who has some knowledge that can be communicated to the Board upon the subjects of its inquiry.

SIDNEY NORMANBY WILLIAMS, sworn, examined by Board:—

9056. DEPUTY-PRESIDENT: What is your position?—I am a consulting mining and metallurgical engineer.

9057. Are you practising independently?—Yes, at 522 George-street and at Balmain.

9058. You are interested in the inquiry that the Board is holding at the present moment into the question of the use of lead in paints?—Yes.

9059. Have you had any personal experience of the use of leads?—Only in general painting, and testing lead against zinc oxide paints.

9060. What is the nature of your experience in general painting?—To test the durability of white-lead as against zinc oxide, and also the covering capacity of both materials.

9061. But you have had no practical experience in the trade use of paints?—As regards the trade use, no, only on general inquiry as by taking particular notice over a period of six years.

9062. What do you mean by general inquiry?—If I noticed a painter painting a building, I would make inquiries as to what material he was using and how it affected him, the method which was used in removing old paint, and if he knew anything of the paint removers, or the use of zinc-oxide paint.

9063. So you have been an observer, by design, of the method of painters and the effect of their work upon their health.—Yes, and the effect upon the painter.

9064. The effect of the work upon the painter's health?—That is right.

9065. With respect to the tests you have made, have those tests been made in connection with your professional work?—Yes.

9066. What was the nature of the experiments you conducted?—For testing the elasticity and durability of paints generally.

9067. But what was your method?—By painting boards and exposing them to the sun and weather, and also indoors.

9068. Did you do them for professional clients, or for your own satisfaction?—I was engaged as works chemist for Lysaght Bros., and also as manager and metallurgist for the Miller Zinc Oxide Company, manufacturing zinc oxide.

9069. Are you able to disclose the effect of your experiments?—Yes. I find that white-lead after it has been——

9070. But are you able to give the Board the whole method and effect of your experiments, or is the information you hold confidential in any way?—No, not in the least.

9071. Have you a record of the experiments and the processes of the experiments?—I believe I have; I would not be sure. I have quite a number of papers on that class of work, and would require to go through them. As regards memorising them, I have a general knowledge of the whole thing right through.

9072. MR. MANNING: If there are papers on the subjects, perhaps the witness had better produce them.

9073. WITNESS: I could look through my papers to see if those are available. It is not usual to keep extended notes on these matters. It was only for information, and when I arrived at that information, I took notes in my notebooks. If the book is about I will look it up and produce it.

9074. MR. MANNING: The evidence would be more valuable if that information were available.

9075. DEPUTY-PRESIDENT: Would it be inconvenient for you to gather together the papers you have on the matter, such as they may be?—I can look them up. It is more than likely they, or copies, are in my possession, but I cannot be sure.

9076. I think it would be more convenient both for yourself and the Board if you were prepared to go through the matter in detail, because the process and method of experiments of that kind are of the utmost importance from the point of view of this inquiry?—I noticed in from four to six months that the conveyor dried in the case of white-lead, leaving the white-lead chalky. Regarding zinc oxide, it was a sound film which was capable of being washed.

9077. Can you say whose zinc oxide and whose white-lead you used?—I could not say what white-lead I used, but it was Lysaght's "Green Seal" zinc oxide and also the Miller zinc oxide.

9078. Have you the record of the source from which you derived the carbonate of lead?—No, it was just the ordinary bought carbonate of lead

and I do not know where it was purchased; but I took it from general analyses they are much of a muchness.

9079. That is an important question. A white-lead full of impurities may not stand up to a test of that kind at all well, whereas a white-lead sold under a trade guarantee would be in a different position?—It was a white-lead which did not contain such fillers as barium sulphate. I looked for impurities in the lead and did not discover any, as regards that; it was a fairly pure white-lead.

9080. Have you records of analyses, &c.?—I am not sure if I have those at hand. The work is usually taken in a small notebook—I did not think it would ever come before this Board.

9081. MR. MANNING: Perhaps the witness had better make a search to see if he can find those papers. If he cannot he can return here and say so and give his impressions.

9082. DEPUTY-PRESIDENT: Will you do that?—Very well.

9083. We will postpone the taking of your evidence until you do so.

(Witness retired.)

9084. DEPUTY-PRESIDENT: The other witness claims to have discovered an absolutely new paint.

9085. MR. MANNING: Perhaps his evidence can be taken at the same time as that of Mr. Williams. It would be more convenient if it is all the same to the Board.

9086. DEPUTY-PRESIDENT: I have no objection to that. It was the intention of the Board to take evidence from the railway witnesses who had made a certain amount of research through the railway books with regard to absenteeism. The Board hoped to be able to put the three gentlemen who were connected with that work into the box together in order that the evidence might be taken from all of them at the same time, so that they might be able to tender three documents which were of considerable importance, in combination as well as separately, and any explanation of the methods which were used (which were the same in each case) from the three persons engaged in the work of research. Two of those persons have attended, but the third, unfortunately, has not attended because of some accident. The Board in view of that fact is left without witnesses unless of course it takes the evidence in sections.

9087. MR. MANNING: It would really be more convenient for us if the Board took them together because it would prevent duplication. I will have my medical witnesses in attendance to-morrow and there are one or two matters I would like to go into first.

9088. DEPUTY-PRESIDENT: The railway witnesses will not be long. We will call them first and you might have your witnesses in attendance at 10.30.

(At 3 o'clock the Board adjourned until 10 a.m. the following day.)

(SEVENTEENTH SITTING.)

FRIDAY, 29 JULY, 1921.

(The Board sat at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

WILLIAM JOSEPH HAYWARD, previously sworn, recalled ; GEORGE WILLIAM WRAY, sworn ; CHARLES JAMES GRIFFITHS, sworn, examined as under :—

9089. DEPUTY-PRESIDENT : What is your position, Mr. Wray ?—Staff and time clerk, Permanent Way Department, Metropolitan Division, in the employ of the Railway Commissioners.

9090. How long have you occupied that position ?—About eleven years.

9091. What is your position, Mr. Griffiths ?—Principal clerk, Randwick Tramway Workshops. I have been there about seven years.

9092. Have you, Mr. Hayward, a copy of a letter that was written by the Board to the Commissioners ?—I did not bring it down with me.

9093. Did you see a letter addressed by the Board to the Secretary to the Railway Commissioners on the 14th July, in these terms :—

I beg to inform you that the abovenamed Board is at present investigating a question referred to it by the Minister for Labour and Industry as to the possibly injurious effects upon painters of the use of white-lead in paints and pigments. The full terms of the reference are contained on the attached sheet.

For the purpose of further elucidating the matter the Board will be glad if the Railway Commissioners would be good enough to have prepared by the time-keepers at the Carriage Building Workshops, the Randwick Workshops, and the Permanent Way Shop Branch, with respect to painters—

(a) a table showing the morbidity of painters for a period of two and a half years, as compared with certain other groups of employees and the whole of the employees ;

(b) a comparative table for seven equidistant fortnightly periods during the past two and a half years, comparing the number of days worked by the average painter with another section of the employees and the whole of the employees ;

upon the lines indicated by the Board's Statistical Officer to Mr. Hayward, principal timekeeper at the Carriage Building Workshops.

The Board will recommend that the Commissioners be reimbursed for any reasonable expense to which they may be put in supplying the information required.

9094. Was the letter sent to you, Mr. Hayward, in the form of instructions for work to be done by you ?—They gave me a copy of the latter portion of that containing the information they required

9095. In the form of instructions to you ?—Yes.

9096. And did you execute those instructions ?—Yes.

9097. Did you, Mr. Wray, receive similar information ?—I had instructions to see Mr. Hayward, and I went up to Eveleigh and Mr. Hayward instructed me what to do on the lines of his instructions from the Board of Trade.

9098. The instructions that you got were the instructions I have quoted from the letter?—Yes.

9099. And in your case, Mr. Griffiths?—Prior to receiving a letter from the Secretary's office I had a telephone message from our head office to get out this information, and I sent a clerk to Mr. Hayward to get the particulars.

9100-1. When you say "this information" you mean the information as required by the terms of the letter I have quoted?—Yes. Some days afterwards I got the letter from the Commissioners.

9102. MR. WRAY: The only difference was that I got a telephone message earlier, and I understood that they wanted nine separate periods, and so I took out nine separate periods for three years.

9103. DEPUTY-PRESIDENT: Have you, Mr. Wray, prepared the information in documentary form?—Yes, for three years and nine fortnightly periods.

9104. MR. GRIFFITHS: I would like to explain in my case that on receipt of the telephone message I sent a clerk to Mr. Hayward. We did not get it in the form of seven separate periods, but I consulted Mr. Sawkins about it, and I showed him what I had got out, and I explained that to go back and do it under the terms of the seven separate periods would be a big job, and I asked him would it be necessary in view of what I had prepared. I showed him what I had prepared, and he said he thought it was quite sufficient. I have shown the total time off duty during February, May, and August, in 1920. Mr. Sawkins is quite satisfied with that, and he said he thought it would be quite enough.

9105. DEPUTY-PRESIDENT: That is, Mr. Griffiths, you did not take equidistant fortnightly periods?—No.

9106. Are the terms of the request sufficiently clear to you gentlemen, Mr. Manning and Mr. Connington.

9107. MR. MANNING: Yes.

9108. MR. CONNINGTON: Yes.

9109. DEPUTY-PRESIDENT: Then the documents which you have prepared in accordance with these instructions are available now?—Yes.

[The three witnesses handed certain documents to the Board.]

9110. MR. WRAY: I have here also a list of the accidents which have occurred, and which the Commissioners paid for. I understand now that that is not considered to be lost time because the men were paid for the accidents.

9111. DEPUTY-PRESIDENT: You need not concern yourself particularly, Mr. Wray. It may prove of considerable value to us. I pencilled that in, and that will alter the percentage between the different trades.

9112. You have included them in the sickness?—But I have only pencilled it in. For instance, in the three years the number of painters and brush hands were 58 days off, and the carpenters 322. The total staff was 3,189. That would make 780 days in the first case, and 2,708 in the other. Finally, instead of 247 days lost by the painters, they lost 229, but as they were paid for the accidents you could not count that as lost time.

9113. DEPUTY-PRESIDENT: We will go into the matter in detail in a minute. I will first take the paper tendered by Mr. Hayward and have that marked as Exhibit No. 24.

[Returns from 1st July, 1918, to 30th June, 1921, produced by Mr. Hayward put in and marked Exhibit No. 24.]

9114. Mr. Hayward, you have given us first of all the average number of men employed from the 1st July, 1918 to the 30th June, 1921?—Yes.

9115. Under the classifications of painters, paint mixer, painters' assistants, apprentice painters, and total?—Yes.

9116. There were in the average employed in that period of three years 149 painters, 1 paint mixer, 61 painters' assistants, apprentice painters, and a total of 218?—Yes.

9117. The total time off duty through sickness from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 5,092 days?—Yes.

9118. The total time off duty through injury not considered sustained while from duty, from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 423 days. The total time lost through sickness and injury, not considered sustained whilst on duty, from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 5,515 days. The average time lost through sickness, per man, from 1st July, 1918, to 30th June, 1921, excluding Sundays, was 23·358 days?—Yes.

9119. The average time lost through injury, not considered sustained whilst on duty, per man, from the 1st July 1918, to the 30th June, 1921, excluding Sundays, was 1·940 days. The average time lost through sickness and injury not considered sustained whilst on duty, per man, from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 25·298 days?—Yes.

9120. On the next sheet you have given us similar information with regard to car-builders, their assistants, and apprentices. The average number of men employed in the same period as car-builders was 213, as car-builders' assistants 23, as apprentices 68, and the total was 304. The total time off duty, excluding Sundays, through sickness, was 4,909 days. The total time off duty, excluding Sundays, through injuries not considered sustained whilst on duty, was 247 days. The total time off duty, excluding Sundays, through sickness and injury not considered sustained whilst on duty, was 5,156 days. The average time lost through sickness, per man, from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 16·148 days. The average time lost through injury not considered sustained whilst on duty, per man, from the 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 8·12 days. The average time lost through sickness and injury not considered sustained whilst on duty, per man, from 1st July, 1918, to the 30th June, 1921, excluding Sundays, was 16·960 days?—Yes.

9121. You have given us the same information on the third sheet with regard to the total staff?—Yes.

9122. The average number of men employed in the period was 1,208; the total time off duty through sickness, excluding Sundays, was 24,954 days; the total time off duty through injury not considered sustained whilst on duty, excluding Sundays, was 1,441 days; the total time off duty through sickness and injury not considered sustained whilst on duty, excluding Sundays, was 26,395 days; the average time lost through sickness, per man, excluding Sundays, was 20·657 days. The average time lost through injury, not considered sustained whilst on duty, per man, excluding Sundays, was 1·193 days. The average time lost through sickness and injury not considered sustained whilst on duty, excluding Sundays, per man, was 21·850 days?—Yes.

9123. On the fourth sheet you have given us the average days worked per man per period of twelve days, taken from seven equidistant fortnightly periods during the past three years, from the 1st July, 1918, to the 30th June, 1921?—Yes.

9124. In respect to the total staff, the average per man per period over the seven periods is shown at 11·317 days?—Yes.

9125. So there is a loss of 687 days?—Yes.

9126. The information with respect to the car-builders under that head is that the average days worked over the seven periods numbered 11·402 days,

which is slightly better than what is shown in respect of the general staff?—That is so.

9127. The information under the same head that is given with regard to the painters, shows that their average over the seven periods is 11·190 days?—Yes.

9128. When you were computing the days lost and the total time off duty through sickness, what kind of sickness did you include in your calculation?—I took the whole of the sickness which was mentioned on the medical certificates.

9129. That is, sickness which had endured for a certain length of time?—Yes, possibly three days or over.

9130. So a calculation is made only with respect to sickness which has lasted for at least three days?—In a few cases there were men who submitted certificates which may have been for only two days, and those are included.

9131. But those cases, I take it, would be the exception?—Yes.

9132. We have heard from you that the rule is that a certificate must be supplied only in respect of three days' absence?—That is so.

9133. Are these few cases likely to affect the calculation in any way?—I do not think so. I have also here the details of the time that was lost through sickness by the car-builders and painters, covering two years. The last time I was down here I gave the particulars for twelve months, and this is a continuation of that.

9134. So that the detail of each individual case is contained in these schedules?—Yes, for the car-builders and their assistants, and the painters and their assistants.

9135. In the case of the car-builders, their assistants, and apprentices, and the painters, their assistants, and apprentices?—Exactly.

9136. This schedule is identical in form with the schedule that you supplied to us when giving us evidence some time back?—Exactly.

9137. Can you say how many cases of specific lead-poisoning are recorded here in the case of the painters?—I did not pick them all out, but there are three or four, I think.

9138. You have made no attempt to summarise the cases that may be attributable to lead?—No.

9139. You do not pretend to any knowledge that would enable you to do so?—No.

9140. Have you more than one copy of this schedule with you?—No.

9141. I will attach these two schedules to Exhibit No. 24. Did you exclude any sicknesses because of their excess of duration as compared with the average case?—No.

9142. So that while there is a necessary limit, there is no finalising limit so far as the sickness is concerned, except the return to health?—That is correct.

9143. MR. MANNING: The schedule attached to Exhibit No. 24 deals with car-builders, &c. Then it gives the name, the occupation, the nature of illness, and the number of days off. It stops there. All it does is to give the names and occupations of the people, and the nature of the illness. I was wondering if that was brought into any other statement.

9144. DEPUTY-PRESIDENT: Yes, that is brought into the statement that is marked as Exhibit No. 24. This is a tabulation of the actual medical certificates and the records with respect to time lost. That tabulation is made the basis of the computations which I read out, and which appear in Exhibit No. 24. I am sorry that these papers were not duplicated so that you might have had them as the Board received them. I am wondering whether it may not be advisable to ask these gentlemen to return after lunch and give us certain information with respect to these documents. Another alternative

open to us is to have copies of the tables made, but that will apparently take some time. The four principal sheets of the exhibit could be copied in about an hour, but the schedules would take considerably longer. If these gentlemen were invited to remain here for an hour, while we went on with other business, you would by then have copies of their evidence before you need examine them.

9145. MR. MANNING : Perhaps if I run through it for a minute I may be able to do it straight away.

9146. Mr. Haywood, you have a return here in respect of car-builders, showing the nature of the illness of each individual and the number of days off?—That is so.

9147. What part does that play in the preparation of this exhibit?—With the particulars here and the document I put in last time for the twelve months, that will show the total number of days off through sickness.

9148. That is with the one you put in last time with respect to the twelve months?—Yes.

9149. In the case of painters, painters' assistants, and apprentices, you show the average number of days lost per man as 25·298?—Yes, that is through sickness sustained whilst on duty.

9150. In respect of car-builders and their assistants it is 16·986?—Yes.

9151. And in respect of the total staff it is 21·850 days?—Yes.

9152. MR. MANNING : This shows the average number of days lost through sickness, in the case of painters, their assistants, and apprentices, as 25·298 days.

9153. DEPUTY-PRESIDENT : Excluding in all classes those who were sick for less than three days?—Yes.

9154. MR. MANNING : In respect of car builders and their assistants, the figure is 16,960 days, and in respect of the total staff it is 21,850 days. So that the position shown there in respect of painters is that they are worse than the general staff.

9155. DEPUTY-PRESIDENT : Slightly worse than the general staff, and much worse than the car builders.

9156. MR. MANNING : Yes. The car builders, their assistants and apprentices, also includes those who are working as painters in the car building, I suppose, Mr. Haywood?—No ; this only means the car builders themselves. This does not include the painters at all.

9157. DEPUTY-PRESIDENT : Does that mean the wood-workers of the car building shop?—Yes ; men classified as carriage builders.

9158. MR. MANNING : The trouble is that some of the statistics show them as including painters.

9159. DEPUTY-PRESIDENT : Yes ; those are the general statistics of the trade. We were careful to explain to Mr. Hayward when he was here that we wanted them separately. We left it to him not to make a cross classification. If Mr. Hayward says that there has been no cross classification we must take it that he is correct.

9160. MR. MANNING : Quite so.

9161. WITNESS : This would have been clear if I had shown on the top of that schedule "Carriage Painters" instead of simply "Painters" ; that is what it means.

9162. MR. MANNING : The last sheet shows the average days worked per man. The only difference between the total staff of car builders, assistants and apprentices, and the painters, assistants, and apprentices, is a decimal point. Those are the average days worked?—Yes, that represents a period of twelve days.

9163. DEPUTY-PRESIDENT : Are you paid fortnightly?—Yes.

9164. Then it is per pay period?—Yes.

9165. So that the painter loses about 150 more than the car builder?—Yes.

9166. MR. MANNING: Do those figures relate to the permanent employees or to the casuals?—Permanent and temporary employees. We do not have casual employees.

9167. You are taking here an average per man per period?—Yes.

9168. And you make that up from an estimate of the permanent employees and also the temporary employees?—Yes.

9169. What allowance do you make for the fact that a temporary man may be off for perhaps three months owing to lack of employment?—We do not have that. On the temporary staff now we have two painters and eight painters' assistants, and all of those have had over two years' continuous service.

9170. DEPUTY-PRESIDENT: Those are the only temporary hands you have?—Yes.

9171. MR. MANNING: This is compiled over a period of three years?—Yes.

9172. What was your position the year before?—As far as we are concerned, the temporary man really works full time except time he loses through his own fault.

9173. You say that for the past two years those temporary men were employed continuously?—Yes.

9174. Can you say that with respect to the three years?—I did not look that up. I just looked up the temporary staff we had, and I saw that the last period we had eight painters' labourers and two painters on the temporary staff. I noticed that one of those had nine years' service.

9175. MR. COOPER: As a temporary hand?—Yes.

9176. MR. GRIFFITHS: That is probably due to the fact that he cannot pass the doctor. That is the reason he is temporary. He cannot comply with the departmental regulations for the permanent staff. He may be over 40 years of age, or he may not be able to pass the doctor.

9177. MR. WRAY: There is another reason for that. The Commissioners stipulate a certain number of men on the permanent staff, and until there is a vacancy they cannot be appointed to the permanent staff. A man may be temporary for twenty years owing to that. I have known a carpenter to be temporary twenty-two years, and ultimately he was too old to be appointed to the permanent staff.

9178. MR. ROUTLEY: Although he was not a permanent hand he was permanently employed, Mr. Wray?—Yes, he was still on the temporary staff.

9179. MR. MANNING: And continuously employed?—Yes.

9180. MR. GRIFFITHS: You have to keep a proportion of temporary men and permanent men. In the case of slackness the temporary man would have to go before the permanent man. Or a man may have hernia and the doctor will not pass him; if he will undergo an operation for hernia and can be cured the doctor may say, "Very well, I will pass you"; and he can then be put on the permanent staff.

9181. MR. MANNING: Do you gentlemen agree as to this: that provided there was work available you keep both the permanent and temporary staff employed continually over a period of three years?—Yes.

9182. You say that is so?—Yes.

9183. MR. WRAY: For instance, the Commissioners decide to re-paint the stations, and they have what they call a painting programme, and then probably fifty or sixty men will be put on for three or six months.

9184. DEPUTY-PRESIDENT: That is in the nature of a seasonal period of painting?—Yes. That used to be every year. Prior to the war more were

put on, but the painting is not kept up to the same standard now as it used to be, and the men are not kept on.

9185. MR. MANNING: I understand the position now, and I do not think I want to ask any more questions at the present time. If, however, on a closer examination of these figures, I think it is necessary to ask further questions, I shall perhaps ask for these gentlemen to be recalled. Of course I do not want to bring them back unnecessarily.

9186. DEPUTY-PRESIDENT: Quite so. I am sure that they are interested in their work, and that they will be pleased to give us any further information that is necessary.

9187. MR. MANNING: I must admit I cannot quite follow all these figures. Do you fully understand them, Mr. Deputy-President?

9188. DEPUTY-PRESIDENT: Well, I find it a little difficult to assimilate such a mass of figures all at once. With respect to the figures prepared by Mr. Haywood, I do not think I can usefully ask any questions at the present moment.

9189. MR. MANNING: The difficulty I am in is this: one sees what the ultimate conclusion that they arrive at there is, but it is a question to my mind——

9190. DEPUTY-PRESIDENT: It seems to point to the fact that the painter is rather worse off, from the point of view of health, than the other classes of employees with whom he is compared.

9191. MR. MANNING: Well, it does not establish the contrary, at any rate. That is the way I am prepared to put it at the present stage. I say 'tin that way because I do not know what circumstances ought to be taken into consideration as circumstances affecting the value of these figures. I mean, take the nature of illnesses; there is influenza, bronchitis, influenza conjunctivitis, and things like that.

9192. DEPUTY-PRESIDENT: They spare no man.

9193. MR. MANNING: Quite so. It may happen that painters carry on their work in what may be called enclosed spaces, and that kind of thing, and that that affects the general health. I do not know at present what its significance is with regard to lead, which, of course, is the subject of this inquiry.

9194. DEPUTY-PRESIDENT: That is another subject altogether, upon which these gentlemen have no evidence to give at all.

9195. MR. MANNING: I am not contesting a lot of these figures at all. If once I see that causes may be assigned for absence or for illness, which are attributable to a man's occupation as distinct from the material with which he is working then it seems to me to be wide of the mark and to involve speculation merely. I mean I would not bother a witness with a thing like that, because it would not be fair to the witness, and it would not be fair to take up the time of the Board. That is the view I have taken so far, and I venture to suggest that that is the right view of it.

9196. DEPUTY-PRESIDENT: These witnesses do not attempt in any way to associate the illnesses with lead on their own responsibility. The only association with lead is such association as the doctors' certificates received by them may establish.

9197. MR. MANNING: Yes.

9198. DEPUTY-PRESIDENT: I propose to add to the exhibit, Mr. Manning, the papers that you have now returned to the Board as tables C and D. Tables A and B are the tables in the same form; that is, a record of the man's name, the occupation, the nature of illness, and the time off ill. Those papers were originally handed to the Board by Mr. Hayward, and have apparently been in your possession since. Copies of those documents will be made available to you as early as possible.]

9199. Mr. WRAY: I would like to say that the first sheet attached to the documents I have produced contains simply a little information for you, but is information which was not asked for.

9200. DEPUTY-PRESIDENT: Before we come to that, Mr. Connington, I do not want to discharge Mr. Hayward because I am quite sure that these gentlemen in combination can give us a good deal of information that they might not by accident give us if they were examined alone. We have had an illustration of that from conversations that have taken place. If you would like to ask Mr. Hayward any questions with regard to his paper, now is the time, I think, for you to do so.

9201. Mr. CONNINGTON: I have not yet examined them. I would like to ask Mr. Griffiths a few questions.

9202. DEPUTY-PRESIDENT: We will come to his paper later. If you have no questions to ask Mr. Hayward I will proceed to examine Mr. Wray.

9203. Mr. WRAY, the principal papers you produce are headed in this way: Average number of men employed from 1st July, 1918, to 30th June, 1921?—Yes.

9204. In respect of the three classes, you have given us this information: the average number of painters and brush-hands employed; does that include assistants?—No, we have no assistants. In fact, we only had one brush-hand during that period. They were dispensed with afterwards. Brush-hands were used generally for doing flat work or bridge work, or something like that. The man was off twelve days, and that was the last sickness we had with the brush-hands. We have no painters' labourers or apprentices. They do their own mixing. The only other men who come in in connection with it are those who mind the material.

9205. The group of painters and brush-hands in that period of three years numbered in the average thirty-four?—Yes.

9206. The group of carpenters and carpenters' labourers numbered in the average 126?—Yes.

9207. The total staff numbered in the average 552?—Yes.

9208. The total time lost through sickness in the three years, excluding Sundays, was, in the case of painters and brush-hands 540 days, and the percentage of time lost per man was 15·9 days?—Yes.

9209. In the case of the carpenters and carpenters' labourers, the total time lost in three years was 1,828 days, and the percentage of time lost per man was 14·5 days. In the case of the total staff, the number of days lost in the period was 9,568 days, and the percentage of time lost per man was 17·3 days?—Yes.

9210. The total time off duty through injury not considered sustained whilst on duty in the period, excluding Sundays, is estimated at nil?—Yes.

9211. The total time lost through causes other than sickness in that period, excluding Sundays, was: in the case of painters and brush hands, 298 days, or a percentage of time lost per man of 8·8 days; in the case of carpenters and carpenters' labourers the total time lost was 1,202 days, or a percentage per man of 9·5 days; in the case of the total staff, the total time lost was 9,863 days, or a percentage per man of 17·9 days?—Yes.

9212. Is percentage the correct term to use in that connection; it is the average is it not?—Yes.

9213. You take the average number of men employed and the total number of days lost, and you divide the greater by the lesser, and you get the result, which you have termed a percentage, but which is really an average?—Well, it is a percentage; you are comparing it with the other; you are comparing the men with the painters and the carpenters with the painters. It is really not a percentage to the carpenters. I should say it was the average.

9214. Then you show the total time lost through sickness and other causes in that period, excluding Sundays ; in the case of painters and brush hands, 838 days, or an average per man of 24·7 days. In the case of carpenters and carpenters' labourers a total of 3,030 days, or an average per man of 24·0 days. In the case of the total staff, a total of 19,431 days, or an average per man of 35·2 days?—Yes.

9215. You have added in pencil certain figures?—Yes. Those figures are days lost from accidents, which the Commissioners have paid for. I questioned in my mind then whether that was actual loss, and if it was not actual loss it would alter those figures somewhat. If you accept that, the pencilled figures would become the typed figures.

9216. In order to make your document comparable with that produced by Mr. Hayward, I think we will have to exclude accidents. In your case we have the benefit of having the time lost from accidents pencilled in alongside the illnesses?—Yes, and that would alter the average.

9217. I think we will leave it as it stands in order that it may be strictly comparable with Mr. Hayward's work, while at the same time we have the benefit of the additions in pencil?—Quite so. You can see that there are a greater percentage of accidents. I should say that a great many of them are in the bridge building.

9218. Then you give us the same information with regard to men employed in the period ending 13th July, 1918. That is your first fortnight?—Yes.

9218½. That shows the total time lost through sickness in that fortnight as : in the case of painters and brush hands, 5 days, or an average of ·227 per man ; in the case of the carpenters and carpenters' labourers, 4 days, or an average of ·047 per man ; in the case of the total staff 6 days, or an average of ·142 per man. Then you have total time off duty or loss through causes other than sickness : painters and brush hands, none ; carpenters and carpenters' labourers, 3 days, or an average of ·035 days per man ; total staff 65 days, or an average of ·140 days per man. Total time lost through sickness and other causes, excluding Sundays : painters and brush hands, 5 days, or an average of ·227 days per man ; carpenters and carpenters' labourers, 7 days, or an average of ·082 days per man ; total staff 131 days, or an average of ·282 days per man. In the fortnight ending 2nd November, 1918, the painters and brush hands lost on the average, ·091 days per man, the carpenters ·215 days, and the total staff ·181 days from sickness. From causes other than sickness, the painters lost ·045 days per man, the carpenters ·086 days, and the total staff ·084 days per man. In the case of sickness and other causes, the painters lost ·136 days per man, the carpenters ·301 days, and the total staff ·265 days per man. In the fortnight ending 8th March, 1919, the painters lost no time from sickness ; the carpenters and carpenters' labourers lost ·25 per man, and the total staff lost ·183 days per man. From causes other than sickness, the painters lost nothing, the carpenters lost ·111 days per man, and the total staff lost ·171 days per man. In the case of sickness and other causes, the painters lost nothing, the carpenters and the carpenters' labourers lost ·361 days per man, and the total staff lost ·354 days per man. For the fortnight ending 12th July, 1919, the painters lost from sickness 1·379 days per man, the carpenters lost 1·131 days per man, and the total staff lost ·742 days per man. From causes other than sickness the painters lost nothing, the carpenters lost ·131 days per man, and the total staff lost ·137 days per man. , From sickness and other causes the painters lost 1·379 days per man, the carpenters lost 1·262 days, and the total staff lost ·879 days per man. For the fortnight ending 15th November, 1919, the painters lost through sickness ·279 days per man, the carpenters lost ·156 days per man, and the total staff lost ·304 days per man. From causes other than sickness the painters lost nothing, the carpenters lost ·191 days per man, and

the total staff lost .120 days per man. From sickness and other causes the painters lost .279 days per man, the carpenters lost .347 days per man, and the total staff lost .424 days per man. For the fortnight ending 20th March, 1920, the painters lost .068 days per man from sickness alone, the carpenters lost .159 days, and the total staff lost .196 days per man. From causes other than sickness the painters lost .272 days per man, the carpenters lost .065 days per man, and the total staff lost .151 days per man. From sickness and other causes combined, the painters lost .34 days per man, the carpenters lost .224 days per man, and the total staff lost .347 days. For the fortnight ending 24th March, 1920, the painters lost nothing from sickness, the carpenters lost .128 days per man, and the total staff lost .242 days per man. From causes other than sickness the painters lost nothing, the carpenters lost .179 days per man, and the total staff lost .137 days per man. From sickness and other causes combined, the painters lost nothing, the carpenters and carpenters' labourers lost .307 days per man, and the total staff lost 1,379 days per man. For the fortnight ending 27th November, 1920, the painters lost from sickness .028 days per man, the carpenters lost .078 days per man, and the total staff lost .135 days per man. From causes other than sickness, the painters lost nothing, the carpenters lost .015 days per man, and the total staff lost .089 days per man. From sickness and other causes combined, the painters lost .028 days per man, the carpenters and carpenters' labourers lost .123 days per man, and the total staff lost .224 days per man. For the fortnight ending 2nd April, 1921, the painters lost nothing from sickness, the carpenters lost .049 days per man, and the total staff lost .025 days per man. From causes other than sickness, the painters lost .292 days per man, the carpenters lost .155 days per man, and the total staff lost .209 days per man. From sickness and other causes combined the painters and painters' labourers lost .292 days per man, the carpenters and carpenters' labourers lost .204 days per man, and the total staff lost .234 days per man.

9219. Mr. MANNING: Is there continuous work provided for those carpenters over the period of three years?—I can give you the number of carpenters.

9220. These figures are very extraordinary, Mr. Deputy-President. It shows that in a very large number of cases the morbidity amongst the carpenters is very much higher than the morbidity amongst the painters, and yet we have it that the carpenters are the most healthy of the lot.

9221. Mr. COOPER: There are a lot of accidents amongst bridge carpenters.

9222. Mr. MANNING: That may explain it. Still, it is very interesting, because there you bring out the very significant fact that the absences and the short lives are very often due to circumstances which we are not considering very much in this inquiry at all. For instance, take a carpenter; his absence from work is very often due to a cut finger, and things of that sort.

9223. DEPUTY-PRESIDENT: Yes. We can only bulk the causes and look at them statistically.

9224. Mr. MANNING: But it is very important in estimating the risk from lead. For instance, supposing we find that painters lose ten working days in the year, and it is suggested that that is due to lead. We turn up the carpenters, and we find that they lose twelve days per year, and the conclusion to be come to from that is that it is nothing more than an ordinary trade risk.

9225. DEPUTY-PRESIDENT: We are not going to make any assumptions that are not justified; at least, we hope that we will not, and we shall be glad if you will analyse the figures carefully.

9226. MR. MANNING: Yes. I just mentioned that while the witnesses are here.

9227. MR. WRAY: There is a list of the sicknesses described with the papers.

9228. DEPUTY-PRESIDENT: The witness adds to the exhibit a list of the painters who have been off for over fourteen days, giving the name of the painter, his medical cause, the dates of absence, and the total period of absence. Amongst the men sick over fourteen days there is one whose illness is due to lead-poisoning. In a further table the witness gives a list of the men who have been sick less than fourteen days, with the periods of their illness as assigned to each name, but not the medical cause?—No, I could not get the doctor's certificates for those.

9229. You do not add the effect of the certificate?—No, I prepared this last Thursday, and it was rush work; the certificates were filed in the Existing Lines office, and I could not trace them in the time; we had not sufficient time to do it.

9230. That information was given with respect to the painters?—Yes.

9231. For the purpose of comparison and contrast you have given us similar information in the case of carpenters?—Yes.

9232. Carpenters who have been sick for over fourteen days are shown with their names and illnesses and periods of absence?—Yes.

9233. And they are also shown with their periods of illness under fourteen days?—Yes. You will see at the bottom of that carpenters' labourers. I have not enumerated the names there, because all the men who came under the carpenters were termed for the time-being carpenters' labourers, but they may only be working for a day or two. We have not many men under the classification of carpenters' labourers, but anybody who was working with the carpenters at the time this was taken out were considered in the award they are under as carpenters' labourers. The carpenter was supervising the work, and they were under his directions, and he signed their time notes, and so we included them. There are a great number of them, because they go off and on. They are ordinary labourers, and probably go on with anyone who requires them.

9234. I think you have given us all the information we require. Then you have given us a table showing particulars of the time worked during nine periods as under—by painters, carpenters, and general staff. You have shown the periods; the total time under twelve days; the total time over twelve days; the staff employed; and the average time worked per man per fortnight in the case of painters, carpenters, and general staff. Does this summarise the effect of the single pages that I was reading, having relation to the fortnights?—Yes, this includes those fortnights.

9235. This is merely a summary of what we have already learnt?—Yes, that is a summary of the days worked. You have the days lost in the other. You see there might have been time lost here, but then there are men who work overtime, and that is why we have the total time under and over.

9236. You have protected us from the confusion that would result from the working of overtime by setting it out. A man may lose a day one week, and probably work one day overtime in the next week, so that in the fortnight he would work the twelve days.

9237. You have added for your own information, and not because of any request from us, time lost in respect of staff and paid for?—Yes. That will serve no good purpose here, because we would have to take out the average number of men in those particular staffs.

9238. Then we will exclude it, because we do not want any more than it is essential we should have. I will hand that sheet back to you?—Very well. [*Return by Mr. Wray put in and marked Exhibit No. 25.*]

9239. As in the case of Mr. Hayward you have only included in your calculation illnesses of three days' duration?—No. We have included everything on the time-note where it was marked sick. For instance, if a man had gone off sick one night and he returned the next day and satisfied his foreman that he had been sick, the foreman would mark on the time-note "sick" for that day. I have included any time at all, even only half a day, if it is marked sick. If they were not satisfied with regard to the absence it was marked "vacant." Every hour that is put in for sickness, if it is marked "sickness" on the time-note, appears there. Where we have the doctor's certificate it would of course be marked there. Otherwise if it is only half a day I have put it in.

9240. You have not been able however to add to your record the information that Mr. Haywood gave us with regard to the medical causes of illness?

9241. You have already explained that the medical certificates were not available to you?—That is so, they were not available at the time.

9242. Mr. GRIFFITHS: I might explain that at the end of each month the medical certificates from the workshops are sent to the head office, and from there to the Railway Medical Officer, who peruses them and checks them. He would hold them, but it would be very difficult to get them now.

9243. Mr. HAYWARD: In my system I enter the particulars in the book, and that is how it is that I was able to supply the full particulars.

9244. Mr. WRAY: Most of those that are marked "sick" for a few days have not been under a doctor, private or otherwise, and we accepted their assertion that they were sick without having a medical certificate. But there are medical certificates for most of those under fourteen days, which were not obtainable at the time.

9245. DEPUTY-PRESIDENT: The variation in method is rather helpful than confusing, I think, in this case. We get a comparison of results produced by the two methods.

9246. Mr. CONNINGTON: Mr. Wray, you have a table here showing particulars of time worked during nine periods, as under, by painters, carpenters, and general staff?—Yes.

9247. What is the object of that table?—I was asked to give the table of the time worked as well as the time lost.

9248. But why select nine periods —?

9249. DEPUTY-PRESIDENT: The request was in these terms, Mr. Connington: "A comparative table for seven equidistant fortnightly periods during the past two and a half years." The period was made three years, so I suppose the witness extended the seven to nine.

9250. You had nine equidistant periods ending over the three years?—Starting from the first period.

9251. Mr. CONNINGTON: Those are not selected in any way?—No. You will see by the dates that there are eight periods between, and that they are all equidistant.

9252. Mr. CONNINGTON: It seemed so extraordinary to me, who did not know why those fortnights should be selected.

9253. DEPUTY-PRESIDENT: The witnesses were complying with what was regarded as good statistical practice by the Board's statist.

9254. Mr. CONNINGTON: I understand now. You decided on so many months, and, as they happened to come, you gave the particulars?—Yes.

9255. The total staff would include the painters and carpenters?—Yes.

9256. And you show the average for them the same as in the other periods?—Yes.

9257. In making up your average for painters, what figures would be checked?—The number of painters employed in each period through the whole of the three years, and the average struck from them.

9258. Would it be an average of averages that you would take?—I can give you that. [*Explaining document to Mr. Connington.*]

9259. MR. CONNINGTON: Your system was to add all the figures for each fortnight together and divide them by the number of weeks?—Yes.

9260. And you worked those out at an average for the three years, by so many?—Yes. In these nine periods, they are the actual men employed during each fortnight.

9261. Would not it be the average weekly number of men employed?—You can take it weekly or daily; it is the average number employed during the whole of those three years.

9262. If you divide it by three it will be the average number per year, would it not?—Yes.

9263. DEPUTY-PRESIDENT: It all depends how the sum is made up. If you take the men of 26 pay-periods and divide it by 26, you will get the number of men per period.

9264. MR. CONNINGTON: You took the total number of men employed, counting the number on each pay day, and then you divided the whole by 156, or three years?—There is an average for the month in each of these cases, and therefore you divide by 36 months for three years.

9265. You divided the monthly averages added together, by the figure 36?—Yes, the monthly average. That shows the total number of men employed during the three years. There are men there who have only been employed a few days. If there are three men in the fortnight, they are all counted in. There are not many like that—very few.

9266. DEPUTY-PRESIDENT: When you were working out your figures with regard to the nine fortnightly periods, did you use as your divisor the average you had found for the year, or did you find the actual number of persons employed?—The actual number of men. The nine periods are marked, "Average men." It can be safely put, "Actual number of men."

9267. You, Mr. Griffiths, have produced this document?—Yes.

9268. Have you a copy of it with you?—Yes. I might suggest it be headed, "Randwick Tramway Workshops." I have not put anything on it to indicate where it comes from.

[*Total time off duty, including absences of three days and under one month, and one month and over, through sickness and injury, for three years ending 30th June, 1921, excluding Sundays and holidays, put in, marked Exhibit No. 26.*]

9269. You have taken the total time off duty, including absences of three days and under one month, one month and over, through sickness and injury for the three years ending 30th June last, excluding Sundays and holidays?—Yes. I might explain why I differed from the other witnesses. I originally made out a list of the total absences for three days, without a maximum, and I consulted Mr. Sawkins about it; the painters were high, due to the fact that one man had been off 187 days suffering from tuberculosis. I pointed out that that figure of course gave a false impression. He then asked me to supply it as I have done, for over three days and under one month, and one month and over.

9270. That accounts for your variation in your method of treating the figures?—Yes.

9271. Taking the information as you have given it to us, in the case of the painters the average number employed in the three years was 43; days off from sickness over three days and under one month 613, average days off per man 14.26. For one month and over, days off 407, average days per

man 9.46. You have also given us figures with regard to injury on duty and injury off duty, I will not handle in detail the figures with respect to injuries. In the case of car builders and their assistants and apprentices, the average number employed for the three years was 60; days off in respect of illness over three days and under one month 524; average days lost per man 8.73; one month and over, days off 354; average days per man 5.9. In the case of electrical mechanics, labourers, and apprentices, the average number employed for the three years was 65; days lost through sickness for three days and under one month 629; average days lost per man 9.52; sickness of one month and over, days off 848; average days lost per man, 13.05. Pitmen and their assistants, average number employed for the three years 42; time lost in respect of illness over three days and less than one month 614; average days lost per man 14.62; sickness of one month and over, days off 59; average days lost per man 1.40. The total staffs including each of the sections referred to numbered 909. That includes all the other men?—Yes, it includes those and all the others.

9272. In the case of the total staff, numbering 909, the days lost through sickness of over three days and under one month in duration were 8,193, or an average of 9.01 per man; the days lost in respect of sickness over one month in duration were 5,775, or an average of 6.35 days per man.

9273. The grand totals in respect of painters for sickness and injuries on and off duty were 1,075 days, or an average of 25.0 per man; car builders, 1,102 days off, or 18.4 per man; electrical mechanics, 1,644 days off, or an average of 25.2 per man; pitmen and assistants, days off 961, an average of 22.9 per man. In the case of the total staff the days off numbered 18,080, or an average of 19.89 per man. Then you give a separate table. You have departed from the method to some extent there, also?—Yes. When I spoke to Mr. Hayward he told me what he was doing, and I got out these figures. Then when I received word from the Secretary for Railways I found it differed from what I was doing. I asked Mr. Sawkins whether these figures would do as it was a big job to go over them all again. I said if he preferred I could cancel them and go ahead on the others, but Mr. Sawkins said "No," as this information being on a different basis might be helpful to the Board.

9274. With respect to painters, car builders, electrical mechanics, pitmen, and total staff you give the average number employed for the three years, the total time off duty during February, May, and August, 1920. There you have used exactly the same figures as in the preceding table, as far as the average number of men employed is concerned?—Yes.

9275. You have not taken the actual number of men found to be at work in those months?—No.

9276. You have given in the case of painters 26 days off, an average of .60 per man. The total of time lost in respect of sickness, injury on and off duty, is in the case of the painters 26 days or an average of .6 per man. As to car builders the days off number 40, an average of .67 per man, the total shows 72 days off, an average of 1.2 per man. For electrical mechanics the days off number 148, an average of 2.27; injury on duty 17 days off, an average of .26; injury off duty 4 days, an average of .06 per man; total days off 169, an average of 2.6 days. As to pitmen days off for sickness 36, an average of .86 per man; injury on duty, days off 27, an average of .64 per man; total days off 63, average 1.5. Total staff, days off through sickness 844, an average of .93 per man; injury on duty, days off 362, average .39 per man; injury off duty 8 days, average per man .088; total days off, 1,214; average 1.33 days per man. Of course you are merely the computer and recorder. I assume you are unable to explain the results as you have produced them, particularly in relation to the electrical mechanics?—No, I cannot; they are just the figures as we get them. Mr. Haywood told me he was asked to

compare the painters with another trade and he was selecting car-builders. Just to provide comparison (I really had no object, and there were no special circumstances connected with the other trades), I simply put those in. We have electrical mechanics and pits men, and Mr. Hayward has not those men at the trade. Pitmen are men who work underneath the cars adjusting the gear, putting on wheels and attending to brakes, &c. They certainly work under uncomfortable conditions inasmuch as they are in draughty pits and are more liable to colds than men in other trades. That is rather borne out by the sickness of over three days and one month. They exceed the painters.

9277. Are they working on water?—No, but they are in pits which are just about the height of a man underneath the cars.

9278. What do you say regarding the electrical mechanics?—There are no special circumstances in their trade——

9279. Why is the illness of over one month's duration——?—I cannot account for that. I do not know of any circumstances which would justify it. Those are the men who attend to the lights and the controllers, and electrical gears. In running cables underneath the cars, certainly they may work in pits.

9280. Is the electrical mechanic's occupation regarded as dangerous at all?—Not that I know of.

9281. They do not suffer specially from shocks?—Oh, no. It is a very rare occasion for a man to get a shock.

9282. MR. CONNINGTON:—There may have been one or two cases of very long illnesses which brought that total up?—You mean in the case of over three days and under one month?

9283. No, over a month. It seems out of proportion to the others?—I can get proper details of the number of men among electrical mechanics who were away over a month.

9284. DEPUTY-PRESIDENT: Perhaps it would be useful if you were to do that, and we can then consider the information as we see fit?—I will do that. I have a rough sheet here which can be typed out almost immediately, showing the number of electrical mechanics who were off over one month.

9285. MR. CONNINGTON: With regard to the second table might not that prove misleading; you have taken for the purposes of comparison the averages as set out in the other table?—You mean the same average? It probably is quite correct because our staff does not fluctuate to any great extent.

9286. But if there were a fluctuation of, say, 25 per cent.?—I do not think it would be sufficient to make very much difference. Of course, it is possible.

9287. If there were, it would make this table of no value; it would be misleading?—It might alter it.

9288. You have the actual figures made up like these?—Yes.

9289. But if it should happen that the average figure would be different, the table would be misleading?—Obviously.

9290. The other figures are the actual times off by the different operatives taken, I suppose, from the books?—Yes.

9291. And you have applied the average figures to that?—We took the average number of men employed for each period in the three years, and divided them.

9292. Then for the three months you assume the total number employed was about the same as these average numbers?—I did not actually prepare this return. Two clerks ran it out for me and it looks as if they have done that, yet on the other hand it may be quite possible it is the actual average. I am not able to say that definitely.

9293. And it is possible that in some of these cases the average might be half the number?—I would not say that. It is possible, but it is very highly improbable.

9294. But it may possibly be that where the table shows 45, there were only 25?—From my knowledge, I say, No. It would not be 25; it might be 40.

9295. For the purpose of getting the actual percentages would it not be better to have the actual figures?—Yes, if you want them. I can easily get them for you.

(Witness retired.)

STEWART ARTHUR SMITH, sworn, examined by Mr. MANNING:—

9296. You are a legally qualified medical practitioner, practising in Macquarie-street?—Yes.

9297. Amongst other things, you are the honorary physician of St. Vincent's Hospital, and assistant honorary physician of the Royal Prince Alfred Hospital?—Yes.

9298. You were a member of the Technical Commission at Broken Hill inquiring into the diseases of lead?—Yes.

9299. You are also the honorary physician in charge of the Outdoor Department of the Royal Prince Alfred Hospital?—Yes.

9300. In addition, you are tutor in medicine at the University of Sydney?—Yes.

9301. I imagine, from the details of your experience, you have given some close consideration to the question of lead-poisoning?—Yes.

9302. I want you to give the Board, from the medical side, a short account, first of all, as to the channels of entry into the body of lead. Will you just tell the Board the different channels by which it enters into the system?—From the industrial point of view, there are only two channels of entry to be considered: Firstly, through the lungs or the breathing apparatus, and, secondly, through the digestive tract. The first of these channels of entry, the breathing apparatus, is by far the more important. It has come to be recognised that industrially lead-poisoning occurs much more frequently from the breathing in of lead dust than from any other source. The evidence has accumulated considerably of late years to this effect, both experimental experience and industrial experience having been strongly in this direction. The particles of lead dust in the air may be very minute, so minute, indeed, as to be invisible. In some respects, dusts of this kind are the most dangerous. The position is summarised in the text-book of Legge and Goadby, published in 1912, at page 12, where the following statement —

9303. DEPUTY-PRESIDENT: What is the title of the book?—"Lead-poisoning and lead-absorption," Legge and Goadby, 1912. At page 12 the authors state:—

"There remains no room for doubt that the lung is the prominent portal with lead-absorption, particularly in industrial processes from which it follows, as has been extensively shown in actual practice, that the diminution of dust in workshops by exhaust ventilation is invariably followed by a diminution in the number of cases of plumbism."

9304. To what class of factory workshop are you referring in that connection?—The book deals with all kinds of processes, but it had in mind, in making that particular statement, the manufacture of white-lead.

9305. Not dealing particularly with paint shops?—No, not with paint shops.

9306. Mr. MANNING: As to the channel of entry, the respiratory tract,

has, what you observe in Legge and Goadby, been borne out by your experience in Broken Hill?—Yes; our own actual experience has confirmed that entirely.

9307. How long were you on that inquiry at Broken Hill?—We are still on it. We have been engaged on it, I think, about eighteen months.

9308. And during the eighteen months have you devoted any considerable portion of your time to the investigation of the problems?—You mean all the problems of lead? Yes. That was one of the principal objects of the medical examination of the men, to determine the incidence of lead-poisoning among them.

9309. DEPUTY-PRESIDENT: Did you see in the working places in Broken Hill anything comparable to workshop conditions? Was there a question of confined space in which the lead-dust would be in suspension?—That, of course, is one of the principal questions that was in our minds in Broken Hill.

9310. You did observe men working in confined spaces in that dust?—I personally did not see them, because they were not working very much when I was there.

9311. Mr. MANNING: You saw the places where they worked?—Yes, I saw those, and we had certain demonstrations given in which, as far as possible, the actual working conditions were duplicated. I quite satisfied myself there are many places in which the men work which are comparatively confined, and which, under certain circumstances, contain a great deal of dust, and the dust contains lead.

9312. The Deputy-President was asking were the conditions you saw there comparable with the working conditions in a paint-shop?—

9313. DEPUTY-PRESIDENT: Not in a paint-shop; in a lead-corroding works, we will say?—Roughly, they are comparable to that.

9314. Mr. MANNING: I was going to follow that out. I do not know whether they would be comparable with conditions existing in a paint-shop dealing with all wet paints?—No.

9315. But take the case of painters in active operation, and particularly in regard to sandpapering and drypapering on the walls and surface, would it be comparable to that, where the dust is caused?—Yes, in some respects it would be comparable to that, because the dustiness of a miner's occupation—

9316. It is comparable to the extent that the dust is inhaled, as dust?—Yes.

9317. DEPUTY-PRESIDENT: Is it comparable in the constitution or character of the dust?—No.

9618. What was the character of the dust you had under observation at Broken Hill?—It was a sulphide.

9319. It was not a carbonate?—The majority of the samples taken from the places examined were those in which workmen were exposed to a sulphide dust.

9320. DEPUTY-PRESIDENT: I do not want to interfere with your examination, Mr. Manning, but would like to ask the witness this: Can you tell us something as to the comparative solubility, the relative solubility, of the sulphide and the carbonate of lead?—The sulphide is very much less soluble than the carbonate.

9321. May we infer that the risks that are incurred by a man inspiring sulphate are much less than are incurred by the man inspiring carbonate of lead?—Yes, the risk is directly proportional to the solubility of the lead.

9322. Mr. MANNING: You were dealing with the channels of entry and you have made these observations with respect to the entry through the

respiratory channels. What is the next matter?—The next channel to be mentioned is that through the gastro-intestinal tract.

9323. Will you describe how it gets there?—This is relatively less important. Not so very long ago it was regarded—at any rate at the end of the last century—as the most important channel of the entry of lead into the system. But recent investigations have shown that its relative importance to the respiratory path is something of the order of 1 to 100. There is still a good deal of what one might call a superstition hanging about the entrance of lead by the gastro-intestinal tract. In the *Journal of Industrial Hygiene*, Vol. No. 1, of May, 1919, this matter is discussed by Dr. Alice Hamilton, who is one of the leading authorities in the United States.

9324. DEPUTY-PRESIDENT: Have you the page of the actual reference?—No, but I can get it for you. I could not bring the volume itself, because it was a library volume.

9325. MR. MANNING: What is the reference?—The matter is there discussed by Dr. Hamilton and she mentions the following experiment or investigation:—

“A blast furnace tapper in a lead works was shown to be able to breathe as much as 1·0625 grammes of lead in one day, but it was possible to wash off his hands only ·0876 grammes. Obviously unless a worker literally washed his hands in his soup or coffee he could not even get all that amount into his mouth.”

From that Dr. Hamilton was led to express very strongly the opinion that in industrial processes, the entry of lead into the system through the hands of lead workers is very slight.

9326. The risk, you say, is slight. That is, I suppose, compared with the risk of inhalation through the lungs?—Yes. There is no doubt poisoning does occur through the ingestion of lead into the digestive tract, but industrially it is not important at all. Most of the very well-marked cases of lead poisoning, or even of epidemics of lead poisoning, occurring through ingestion of lead through the digestive tract, have been instances of a non-industrial nature. There is no doubt it can occur by a transference from the hands, etc., to the digestive tract.

9327. I suppose in regard to the ingestion in the manner you have indicated the susceptibility of the individual is a matter to be taken into account? Is it not more possible in the case of some individuals than in others?—No matter how lead enter the system, the susceptibility of the individual plays an important part.

9328. DEPUTY-PRESIDENT: Will you explain the course which would be followed physiologically by dust inspired, and the course followed by dust ingested into the alimentary system?—Lead inspired finds its way into the air spaces of the lung and thence into the actual tissue of the lung.

9329. Does it cause lesions, and is it wrapped up in the tissue through the lesion?—In the lung itself? No, it does not cause any lesion of the lung.

9330. Its course is not comparable then with the course of fragments of silica?—No. Our experience in Broken Hill has shown that very definitely indeed. No fibrosis of the lung or any similar lesion occurs as the result of lead. It is carried by the blood and deposited in various tissues. It is excreted mainly by the bowel, and in some cases, to a slight extent, by the urine. The excretion by the bowel is a matter of considerable importance because it was thought at one time that lead colic could only arise by the ingestion of lead. But that is an erroneous idea.

9331. How does the change take place between the lung and the blood channel?—The white blood corpuscles are the actual medium.

9332. They are the actual carriers, and they pass through the wall of the arteries?—Yes.

9333. They are not arteries that are connected with the lungs! They pass through the walls of the capillaries?—Yes.

9334. And by that means transfer the actual metal into the blood system?—It is probably not the actual metal, but an organic compound of the metal.

9335. Is there any chemical action in some other organ of the body? Does the blood restore the lead into the metallic form in association with any other organ of the body?—No.

9336. It has been suggested to us that the lead line in the gums is caused by the deposition in the gums of actual metallic lead?—No, it is the deposition of the lead sulphide, the sulphur coming from the tartar which is found in dirty and in septic mouths.

9337. It is really in a metallic form then as a sulphide?—It is a salt of lead. I think, strictly speaking, it might be called metallic, but it does not fall under the ordinary description of metallic lead, and what the ordinary man understands by metallic lead.

9338. MR. MANNING: You have given us the course of the lead when it had been inspired or taken in through the respiratory system?—In the alimentary system a roughly similar course is followed. The lead is altered in its chemical composition within the digestion tract. The progress varies according to the phase of digestion. For example, if there is much albuminous food in the stomach an albuminate of lead is formed which is relatively insoluble.

9339. And which is excreted eventually?—Yes, it is excreted. That is the basis of the practice of inducing workers in lead to attend to their diet, and especially to take albuminous foods, such as milk. In some lead factories workers are always urged not to start work on an empty stomach, and they are also urged to drink milk copiously during their work.

9340. We find there are industrial circumstances in which they are urged to drink diluted sulphuric acid. What would be the effect of that?—The idea, I think, is that a more or less insoluble compound of lead would be formed, which would be excreted without being absorbed; but not very much importance is attached to this aspect of the question now.

9341. What would be the effect of ingesting diluted sulphuric acid if there were no lead in the system?—In a proper dilution and suitable dosage, it has a stimulating effect upon digestion.

9342. And no harmful effect?—No. It is very frequently ordered for ordinary medical purposes, as a matter of fact.

9343. You have reached the point at which you were describing the effect of the combination of albumen?—If the lead is not converted into an albuminate it is likely to be dissolved by the acid gastric juice, and it is absorbed by the ordinary process of absorption from the stomach; and its further course is then similar to that which I have already detailed in connection with the respiratory system.

9344. It is absorbed into the blood and carried through the blood channels as before?

9345. MR. MANNING: Those are two methods of absorption you have mentioned, of getting lead into the system. There is another one, is there not, that has been discussed—that is, absorption through the skin?—Yes.

9346. What have you to say as to that?—The absorption through the skin is quite negligible from a medical point of view.

9347. DEPUTY-PRESIDENT: In fact, it does not occur?—No, it is doubtful if it ever occurs under any circumstances.

9348. MR. MANNING: You reject that as an insignificant cause, if it occurs at all?—Yes.

9349. You have dealt with the excretion of lead?—Yes.

9350. I want you now to deal with the question of susceptibility.

9351. DEPUTY-PRESIDENT: Before we leave this purely physiological section of the evidence will you be good enough to give us some information as to the effect the lead has on the venous system after it has entered the blood, and on the organs which are supplied with their nutriment through the blood?—As lead is probably what is known as direct protoplasmic poison, that is to say, it has a poisonous effect upon the actual tissues—

9352. A destructive effect?—Yes. But there are certain tissues which are specially susceptible to injury, namely, the blood, the muscle—both striped and unstriped muscle—portions of the nervous system, also certain excretory organs, especially the kidney. The effects which it produces in a great number of cases are those of very minute hæmorrhages.

9353. DEPUTY-PRESIDENT: Is a minute hæmorrhage what one might otherwise describe as a lesion of the tissue?—Yes, due to the giving way of the vessel wall. In common with most other metallic poisons, lead seems particularly to induce this weakening of the vessel wall, which causes it to give way. They are only very minute hæmorrhages.

9354. Is it a break in the same sense that a tear is a break; or is it due to the rotting of the tissue?—It is more comparable to the rotting of the tissue than a definite break in the whole continuity.

9355. And after what length of exposure to the toxic effects of lead must one expect these lesions to occur?—I think it might be as well to leave that, because in the next head of my evidence, I have the whole question of susceptibility to be discussed.

9356. I do not want to anticipate anything you wish to tell us, but I do want to pick up information which perhaps may not have been considered as important when you were preparing yourself. So much for the effect on the blood and the blood vessels. Now, will you give us an indication of the effect on the organs of the body?—There is some difference of opinion as to the actual means by which it causes damage, say, to the nervous system, but evidence seems to point very largely to the fact it is by means of these small hæmorrhages that the nervous effects such as paralysis are brought about. But it is also a direct poison to some nervous tissues; it directly destroys nerve cells.

9357. Instantaneously?—No, only after continued exposure for a long period. In the case of the kidney it might produce those effects either by numbers of minute hæmorrhages of the nature I have described, or by destruction of the actual excretory or secretory cells of the kidney substance.

9358. That is the destruction by process of rotting again, inflammation?—Yes. The effect in the kidney is to produce a condition known as sclerosis, which is a process of chronic thickening, or scarring. I think that about summarises the more important effects that it has.

9359. Mr. MANNING: That being so, would you go on to the question of susceptibility and immunity?—

9360. DEPUTY-PRESIDENT: It has been suggested that the lead effects are to be seen in tuberculosis. Will you tell us what effect the lead may have on the lung, in addition to the effect it has on—?—We know of no effect lead can have on the tissues of the lungs.

9361. Mr. MANNING: I was going to deal with the question of tuberculosis a little later on. That, perhaps, may remain at that for the moment.

9362. Now we come to the question of susceptibility and immunity. It is not equally poisonous for all persons, is it?—No, it is not. Some people are much more susceptible to be injured by lead than others. The phenomena

of exposure of a human being to lead are roughly as follows:—Just at first there may be a slight loss of health with a slight degree of anæmia. By “loss of health” one, of course, includes anæmia with a slight loss of weight and a loss of subcutaneous fat. Ordinarily these temporary disturbances of health pass away and the individual then returns to normal.

9363. DEPUTY-PRESIDENT: By a process of immunisation?—Strictly speaking it is not that. It can be more accurately described as “toleration.” In the ordinary man this is a course of events. He seems to establish a balance between the intake and the excretion of lead. Lead may be found in such cases in the excreta of the bowel—in the motion.

9364. Does that recovery constitute the acceptance of another burden, a physiological burden?—Insofar as we know, it does not. Our experience at Broken Hill is very interesting in that respect. This balance having been established it may continue for the rest of the individual’s life provided that no excessive exposure to lead dust, or no danger from other conditions known to be predisposed to lead poisoning should occur. Such conditions are for example severe illnesses or acute alcoholism.

9365. Are those what are medically known as inter-current diseases?—Severe illnesses of the nature of anæmia or acute alcoholism may be classed as inter-current. In some people this balance, or this toleration, is not established. The loss of health goes on continuously until the individual becomes definitely injured by the lead. This varies in degree, but such persons are obviously susceptible to lead-poisoning. If they are removed from the exposure to lead they quickly recover and no lesion persists as the result of their exposure. If they are not removed, the condition progresses until some definite manifestation of injury of a more permanent character will eventually be observed. Consequently, medical opinion holds that susceptible people should be withdrawn from contact with lead. That is to say, persons whose experience after exposure to lead shows definitely they are susceptible people should not be allowed to continue in an industry in which they are exposed to lead.

9366. Mr. MANNING: Being a cumulative poison, I suppose it works on a susceptible individual in the manner you suggest?—Yes. Of course, the person who is very susceptible gets very ill—acute colic, and so forth. But people who are susceptible to a lesser degree are in more danger because, lead being a cumulative poison, it gradually banks up within their tissues, and does ultimately more serious damage.

9367. You have told us that lead ingested and inspired may ultimately be excreted?—Yes.

9368. Is it possible, then, that in the case of the person who is particularly susceptible there is no excretion of the lead? Is the man who can tolerate lead the man who is able to excrete it?—No, all people are able to excrete it.

9369. Does the lead accumulate if it is excreted?—It is a difficulty that suggests itself to my mind at the moment.

9370. Mr. MANNING: Do you distinguish between susceptible and non-susceptible people in that respect?—Yes, but the explanation of susceptibility of some persons does not lie in their lack of powers of excretion of the lead.

9371. DEPUTY-PRESIDENT: It seems to me if lead is excreted an end must come to the burden of lead that is absorbed at some time. I mean the process of excretion must tend to reduce it unless the dose is being repeated?—Quite so, and our experience at Prince Alfred Hospital with men of the type of industries such as painters, plumbers, and accumulator workers, and so forth, is that they show lead in their urine, but it always disappears within a comparatively short time after they are withdrawn from exposure.

9372. Would that mean they are ceasing to excrete, or—?—It means they had excreted the whole of the lead in their body. On the other hand,

at Broken Hill, where we had to deal with men who had been exposed to smaller quantities of lead, possibly, but extended over longer periods, we found the time it took them to complete the excretion of lead was very considerable.

9373. How long would a man carry a poisonous dose of lead, do you suppose—a man of ordinary robustness?—I do not quite understand what you mean by “carry.”

9374. If a man has absorbed to such a degree as to be poisoned from it and is put under treatment and removed from contact with the poison, in what length of time would you expect him to be free of that?—In Sydney our experience was that the majority were quite free in three months, and that no case showed lead after six months.

9375. By excretion?—Yes. Of course, the symptoms of poisoning disappear very much earlier than it takes the lead to disappear from the urine or the bowel.

9376. Is there any means of diagnosing lead other than by analysing the excrement?—You mean the metal itself?

9377. Yes?—Only by the examination of the excrement, which includes the excreta of the bowels and urine. There is no other direct method of recognising the presence of lead in the living body.

9378. You cannot find it, for instance, in a sample of the blood?—No, but there are certain changes in the blood, which I have here for discussion, which indicate lead; but they are not direct evidence of the presence of lead.

9379. The question I put to you was, could you find lead actually in the blood?—No.

9380. MR. MANNING: You reached a point in your evidence where you spoke of lead being a cumulative poison, and people being susceptible; have you recognised certain illnesses which are predisposing causes?—There are certain illnesses which are predisposing. That is, people suffering from those diseases are a great deal more susceptible to lead-poisoning than other people. Of those, the most important are anæmia, Bright's disease, alcoholism, syphilis, gout, and inflammatory conditions of the mouth or of the digestive tract.

9381. You mention those as illnesses predisposing persons to the effect of lead?—Yes.

9382. I do not want you to discuss those in any detail, but you merely indicate them as being pre-disposing causes?—Yes. A person suffering from one or other of those conditions and entering an industry exposed to lead is much more liable to lead-poisoning.

9383. DEPUTY-PRESIDENT: They belong to the susceptible class?—Yes, and their susceptibility is greater because they suffer from those diseases.

9384. They are non-tolerant—they cannot tolerate lead?—They cannot tolerate lead so well.

9385. They are in a non-tolerant class?—Yes.

9386. MR. MANNING: You have already indicated your experience in the Royal Prince Alfred Hospital. How long have you occupied positions there?—At Prince Alfred Hospital, about thirteen years.

9387. During the time, I suppose, you have been closely in touch with the whole administration at the hospital?—I have been seeing out-patients there regularly and also doing in-patient work as well.

9388. Looking back over your experience in that time, are you able to see in that experience any facts in connection with lead-poisoning in reference, particularly, to the most common symptoms?—My experience led me to the general conclusion that lead-poisoning was not very common in this community. In order to get some evidence of that I have searched the records

at the Royal Prince Alfred Hospital from January, 1910, to the present time. In that period there were admitted as in-patients to the hospital thirty-six males, whom I have regarded as painters. There were in all ninety males admitted; thirty-six of those were painters, and they include three coach-painters and one french polisher.

9389. DEPUTY-PRESIDENT: You have not classified the ninety? You say there were ninety males?—Yes, admitted in that time.

9390. As suffering from lead-poisoning?—Yes, and of those thirty-six were painters, including three coachpainters and one french polisher.

9391. By the way, in the admission of patients to the hospitals is there any check made of the industrial history of the patient?—The practice varies to some extent. The patient is first asked by the clerk in the office what is his occupation, and that is put down. Then in taking the medical history, a more detailed industrial history is obtained from the patient.

9392. So that the medical history is intended to cover the occupational history?—Yes. In cases of this nature, where there is an occupational aspect to it, the practice is usually to get rather more detail of the industrial history of the patient than in the ordinary case; but there is no special form provided for the recording of those details.

9393. It is left to the discretion of the clerk?—Of the medical officer. Therefore one finds histories vary a good deal. Someone will be marked down as a painter, and another perhaps attended more carefully, or by a more interested man, will have something of this nature: "This man was a painter for thirteen years, and for the last eight years has used a machine for spraying paint." So there is quite a range of variation in the amount of detail one is given. There is one case here I have marked down in which the occupation of the individual is not satisfactorily stated. He was down as a "returned soldier," and his previous occupation was not stated; so one cannot give an idea of whether or not he had been a painter.

9394. Mr. MANNING: Did you examine the histories of these various people?—Yes, of all these patients.

9395. You made an examination yourself, for the purposes of this inquiry?—Yes.

9396. You have made a careful examination to ascertain what is their industrial history?—Yes. I have included in that thirty-six some individuals who were not painters by trade, but who had given a history of having been amateur painters, as I might term it, who had been painting within a few months prior to their illness. One man, for example, was a carter who had spent six weeks painting his and his friend's houses immediately prior to the attack of colic from which he was suffering. All those people are included in the thirty-six.

9397. You have made an attempt to get the worst cases against the painters; you have included everyone?—I included every one who had a history of exposure to paint. These cases were comparatively mild in character. I have classified them here according to the type of attack from which they suffered, but I think it would be better to leave that matter for a moment, and return to it. That expresses the experience at the hospital from January, 1910, until the present time.

9398. DEPUTY-PRESIDENT: You include the whole of 1910?—Yes.

9399. It is really nearly twelve years?—Yes, nearly twelve years. I have made a note here of the various types of plumbism.

9400. Mr. MANNING: That is where I took you off to get your experience in detail as to the hospital. Having first given the Board that experience, can you tell us what types there are?—There are, roughly speaking, three types of plumbism or lead poisoning. First there is the gastro-intestinal type, or digestive type; secondly, the nervous type; thirdly, the arterio-renal, or

nephritic type. The first of these, the gastro-intestinal type, usually occurs early, after a short exposure of small quantities of lead.

9401. DEPUTY-PRESIDENT: That type includes what is known as the colic?—Its most prominent symptom is colic. It is also associated usually with obstinate constipation and sometimes with vomiting. This type may show some anæmia and some wasting, and in certain cases may show a blue line; but these last three characteristics are common to all types of plumbism. The second type is the nervous type, which is usually produced by absorption of large quantities of lead over a comparatively short period. Small quantities over a short period will give you the gastro-intestinal type, but exposure to larger quantities over a similar period will give you the nervous type, which is a more serious type. The outstanding feature of this type is the paralysis which produces the "wrist-drop," which is the manifestation of the most common form of paralysis. It also produces muscular weakness which falls short of paralysis, headache, and it may even cause conditions which are grouped under the rather cumbersome term of encephalopathy. Under that heading is included those cases which show fits, epileptic in character, mental affections, and blindness. The third type is the arterio-renal or nephritic type, and this is produced by the absorption of small quantities of lead over a long period. It is the most chronic form and in some respects, from the industrial point of view, the most important.

9402. MR. MANNING: What does a "long period" mean?—We have clear evidence from our Broken Hill experience of a man absorbing traces of lead for over thirty years yet not showing any definite lesion as the result of it.

9403. DEPUTY-PRESIDENT: He would not show any nephritis?—No; or other effect; so when one speaks of a "long period" it is certainly a period of over twenty years.

9404. Would ingested lead associate itself naturally with the weaker organs. For instance, if a man is exposed to lead and his kidneys are perhaps the weakest of his organs, would you expect to see the results exhibited by the kidney before being exhibited elsewhere. Is there a process of selection?—Yes. The information I gave you just now about the diseases—

9405. But without a disease?—I think the term "weakness of the kidney" does not convey any impression to a medical mind. Probably fatigue has some bearing upon the determination of the actual paralysis which occurs. Some authorities have certainly held if a man is exposed to lead and gets lead-poisoning which assumes the nervous form those muscles which are most used are the ones most likely to be affected.

9406. That accounts for the wrist-drop in the case of the painter?—Yes. Still that is not peculiar to lead-poisoning. I have just detailed the three types of lead-poisoning, and roughly the characteristics of each of them.

9407. MR. MANNING: I think you broke off the hospital statistics and said you would go back to them.

9408. DEPUTY-PRESIDENT: Will you classify them according to the classification of diseases?—Yes. I have left the returned soldier out. Amongst the thirty-six cases, twenty-eight were of the first type (the gastro-intestinal), four were of the nervous type, and four of the nephritic type. Amongst the four nervous cases one was a carriage painter. Amongst the four nephritic cases one was a coach painter and one was that of a man who had been in Australia for three years only, but had come here from Staffordshire, where he had been a potter, so he came here from an industry which is particularly prone to lead-poisoning.

9409. But according to your theory he would have been free of lead if he had left the industry, would he not?—This was a man who spent many years of his life in Staffordshire; then he came out here and spent the three years he had been in Australia as a painter.

9410. MR. MANNING: The significance of his Staffordshire experience is that this was a nephritic type?—He was one of the more severe type and had been exposed over a long period to lead but not from painting. That is the point. I have some more figures here in reference to my Prince Alfred Hospital experience, but perhaps it would be as well to leave them until we come to discuss the question of diagnosis. The diagnosis of lead poisoning is a matter in many cases of extreme difficulty. Legge and Goadby state that it is necessary in many cases to be a specialist to be able to confidently diagnose those cases.

9411. DEPUTY-PRESIDENT: What is a specialist?—A man who has devoted special attention to the question of lead-poisoning and lead-absorption.

9412. Would a certifying surgeon be regarded as a specialist?—Not unless he had devoted special attention to the question of diagnosis. I propose to deal with some of those difficulties in diagnosis.

(At 1 o'clock the Board adjourned until 2 p.m.)

(*Upon resuming*)—

9413. MR. MANNING: I think you had got to the point where you were discussing whether any definite and clear criterion existed as to lead-poisoning. Will you continue along those lines?—The diagnosis of lead-poisoning is frequently a matter of great difficulty. There do not exist any definite criteria of lead poisoning. There is no test which one can apply to an individual case and say, "If this man has such and such a condition he necessarily has lead poisoning." If there were such a criterion the diagnosis, of course, would be easy, and it would be definite; but there does not exist such a test. A diagnosis must, therefore, rest on a consideration of all the evidence given by the examination of the individual case. To go just a little into detail and consider the question of colic. This is the most common symptom of lead-poisoning. Lead colic has certain definite characteristics: the nature of the pain, and the fact that it is accompanied by a slowing of the heart and sometimes by a change in the pupil of the eye—these are all characteristic of the true colic due to lead. But those facts can only be adduced by the examination of the patient when he is really in a paroxysm of pain. The mere statement of the patient afterwards that he has had a colicky pain has to be accepted with reservations, because the nature of the pain is similar to all colics, such, for example, as the colic caused by appendicitis. The hospital records show clearly that many cases have been admitted as suffering from acute appendicitis, and it has been later discovered they have really been suffering from lead colic. There are various other causes besides the appendicitis which can give pain of this character. Amongst other things, this is of considerable importance: exposure to the fumes of turpentine is definitely a cause of colic.

9414. That is established, is it?—Yes, it is established.

9415. Before you leave the subject, that is recognised by Goadby, is it not?—Yes. Goadby is the main authority for that statement, but there are other authorities besides them which I can give you. There is Lehmann, a German investigator in 1899, in "Archiv Fur Hygiene," Vol. xxxiv., at page 321; and Nichol, of Chicago, in the "Report of the Commission on Occupational Diseases, Illinois, 1911."

9416. It will be sufficient if you indicate the authorities?—Sufferers of lead poisoning frequently complain of great pain in the muscles. There is no means of differentiating these so-called rheumatic pains from similar pains arising from other causes. Differentiation must rest upon other signs of lead poisoning present in these cases. We come now to the question of the "blue line." The blue line has been regarded by many doctors as being absolutely characteristic of lead-poisoning only. This, however, is not a fact. It occurs

frequently in persons exposed to lead, especially in those cases in which the mouth is not clean and in which the teeth are not cared for. But it is a sign, not of lead-poisoning, but of exposure to lead. The true blue line exists because of the actual deposition within the substance of the gum, close to the margin of the teeth, of particles of sulphide of lead, and a careful examination by a lens in true cases of the lead line reveals this character about the line. There are conditions, however, that produce an appearance which is somewhat similar to this. In the first place, a man who has simply taken lead-dust into his mouth can get the blue line, that is, on the actual surface of the teeth, and not actually in the substance of the gum. In such cases, as we have proved at Broken Hill, the blue line can be removed by simply wiping the teeth vigorously with some cotton wool. Furthermore, persons who have not been exposed to lead in any form, and who are definitely not suffering from lead-poisoning, but who have septic mouths, have a bluish discoloration at the edge of the gum that may be easily mistaken for the true blue line if the examination is not conducted with a lens. This is the most frequent source of error in diagnosis because, as I stated before, the diagnosis in very many cases and in many statistics has rested more upon the presence of the blue line than upon anything else. I can give the Board some references bearing upon this point:—Legge and Goadby, page 125; Priestley in the "Medical Annual" of 1915, page 730; and Sellors in the "Journal of Industrial Hygiene," vol. 2, February, 1921.

9417. DEPUTY-PRESIDENT: What would the pigmentation in the last case be caused by?—It is due to the cyanosis, a vascular change due to the chronic inflammation of the tissues of the gums.

9418. And will a lens indicate that as distinct from a sulphide of lead?—Yes, because there is a distinct punctate appearance in the true lead-line which is absent in this line. There are other causes which will occasionally produce a discoloration of the gum. It is seen sometimes in coal-miners, but in those cases the line is quite black. I do again lay stress on the point that, even where the definite blue-line is present it is not an indication of lead-poisoning. It is an indication of exposure to lead.

9419. Absorption, rather than poisoning?—Yes, absorption. Now we come to the question of blood changes. I have previously stated that the action of lead is destructive on the cells of the blood. There appears a condition in the red cells known as punctate basophilia, or punctate reds. This condition was at first thought to be quite characteristic of lead-poisoning. It is an evidence of destruction of the blood cells, but it has been quite definitely proved that it may occur in malaria, in pernicious anæmia, and in people suffering from exposure to poisoning by turpentine. In the cases examined at Broken Hill people who have been undoubtedly exposed to lead over varying periods, punctate reds were noticeably absent. Just as with the blue-line, the presence of punctate reds is not diagnostic of lead-poisoning. The same reference that I have given previously to Sellors in the "Journal of Hygiene," of February, 1921, sets that forth. This really is an article which is entirely devoted to the investigation of the presence of punctate reds as an indication of lead-poisoning.

9420. Are you familiar with the evidence given by Sir Kenneth Goadby in the Commission of Inquiry with regard to painters, in England?—Yes.

9421. He also deals with that particular aspect of the matter?—Yes.

9422. We may then regard his evidence then given as the evidence of an authority on the matter?—Yes, his is the most authoritative opinion in England.

9423. His evidence was given slightly after his book had been prepared for publication, not after its actual appearance, but as a matter of fact before its actual appearance; but the book was complete and in the hands

of the publisher, and finished, when he gave his evidence?—Yes, and he has on other occasions referred to that matter. Only quite recently, before one of these societies in England, he returned again to the question of punctate reds.

9424. And he gave the same opinion as he expressed before, and the opinion expressed in his book?—Yes. I may say that in Germany a great deal of importance was attached to the absence of punctate reds in the blood as a sign of lead-poisoning. Some investigations into the conditions of workers there were founded rather upon that, but they did that under the impression that the presence of punctate reds was practically diagnostic of lead-poisoning. Headache is a frequent symptom complained of by painters.

9425. DEPUTY-PRESIDENT: I do not want to interfere with the order of your evidence in any way at all, but will you discuss with us the suggestion made by Sir Kenneth Goadby about the diagnostic value of lymphatic leucocytosis in lead-poisoning. Do you propose to do that?—I had not proposed to do it.

9426. He seems to indicate that the examination of the blood—the white corpuscles of the blood—affords a very strong means of determining whether a person is in a condition of lead-poisoning, or in a pre-saturnine condition. You have already suggested that persons who are unduly susceptible to lead should be excluded from lead industries. I wondered if perhaps this examination of the corpuscles of the blood might not afford some means of determining whether a man is, after short experience of the work, pre-saturnine or not?—My own view of that question was that it was not by any means founded upon a clear basis of fact yet. I know that suggestion has been made, and there has been other suggestions, too, dealing with other conditions of the blood—changes in the white blood-cells—than the ones you mentioned.

9427. Nothing has developed upon that theory since it was propounded in 1914?—No; it has been a subject of frequent investigation, especially by American investigators, but it has not yet been regarded, I think, as being founded upon any sound basis. In clinical experience here there is no doubt an examination of the white cells has suggested in some cases the possibility of some diagnoses being of true lead-poisoning, which a further examination has confirmed.

9428. If there were a sure means of determining whether a man was peculiarly susceptible to the influence of lead, and if there were sure means of excluding from lead occupations men with a weakness in regard to lead, the dangers of lead-poisoning would be very greatly reduced?—Yes, and I think it is possible to do that, mainly by an examination of the blood, but more by devoting attention to the actual destruction of the red cells.

9429. You will give us some evidence on that point, will you?—Yes. I had not made a special heading of it, but I will do so.

9430. If by reasonable precautions men can be protected against the risks of lead, then lead ceases to become an actual danger. It is an actual danger only when the men concerned become negligent?—The primary effect upon the blood, of lead, is to destroy the red blood cells. The punctate reds are really bound up in that question of destruction. The other changes in the white cells are more or less secondary. By a careful examination shortly after the exposure to lead it can be quite definitely determined if any destruction of red cells is going on at a time long before any clear, definite, or irremediable damage is done to the individual. That is the method which is used in factories in England.

9431. It is regarded as a practical method?—Yes.

9432. And is that the means by which the effects of lead-poisoning are very greatly reduced in the potteries and pottery occupations in Great Britain?—Yes, and in the white-lead works also. The anæmia or pallor which is observed in lead-poisoning is of a rather curious character. It is very noticeable to the trained eye on a mere inspection of the individual. The degree of pallor is rather greater than one would ordinarily expect from the amount of destruction of the red cells that is found on examination. That is thought to be due to the contraction of the blood-vessels. The mere fact that this pallor is so noticeable renders it comparatively easy to immediately pick out those men who are suspected of being affected by lead.

9433. But then that would be rather guessing at the position than ascertaining it, would it not?—No. What I meant was this: it is quite feasible, quite possible, and quite sound to examine men and to actually determine what degree of destruction of their red cells, if any, is present, and it is rendered all the more easy to select those men by their appearance. Examining medical officers for factories, and Government medical district officers in England have laid great stress upon that point. It has, of course, received the name of the "lead pallor." Legge and Goadby contains a number of interesting facts in regard to that, and quotations from the statements of factory inspectors bearing upon that point.

9434. The general appearance of a man would indicate it was necessary that an examination of his blood be made?—Yes.

9435. And that examination of his blood should give those who are concerned in the condition of his health sufficient evidence to determine whether he was a pre-saturnine case, or a case of lead-poisoning?—Yes.

9436. Mr. MANNING: Apart from the examination of the blood, I suppose you could tell from other symptoms, after exposure for a little period, whether or not that person was susceptible to lead?—Yes, there are other indications of that as well.

9437. I think that is one of the matters the Deputy-President would like you to deal with. You can ascertain from other symptoms, after exposure to lead, whether an individual is susceptible to lead before any irremediable effects are noticeable?—Yes.

9438. DEPUTY-PRESIDENT: I am speaking of something else than lead-poisoning now. Can we take it that some men absorb lead, and some men do not absorb lead?—I think all men who are exposed to lead absorb it.

9439. But not to the same degree?—No.

9440. Whereas one man is more susceptible to poisoning than another, so also some men are less susceptible to absorption than other men?—I do not see how I can give any definite opinion founded upon facts with regard to the latter part of that question.

9441. Mr. MANNING: At any rate, you do recognise this, that there are symptoms which, after exposure for a comparatively short period, would give an indication as to whether that person should be allowed to remain in the industry?—Yes, there are certain very clear and very definite indications, apart from the condition of the blood.

9442. Which are those?—The loss of weight, with the loss of sub-cutaneous fat, and the early presence of slight muscular weakness. One is not referring there to muscular weakness, which is very obvious both to the patient and to the examining doctor, but to early signs of weakness which can by special tests be detected.

9443. Mechanical tests?—Yes, testing the power of one group of muscles as against another group. I may say that is done very widely in English factories at the present time.

9444. Mr. MANNING: Apart from that, can you say whether there are certain people who suffer from definite attacks of lead-poisoning within a

month or so which you can diagnose?—Yes. Of course colic is the most frequent indication of that, and after all, that is the most practical way of determining the people who are susceptible.

9445. DEPUTY-PRESIDENT: Is there such a thing as acquired immunity?—I think the so-called immunity that the average person develops towards lead is an acquired one.

9446. But can a man make himself proof against the toxic effects of lead?—Yes, certainly.

9447. You used the expression “immunity” suggested by the Deputy-President. Is that what you mean by toleration?—I prefer the word “toleration.” Turning to the other point, it is a very well-known fact, and we have plenty of evidence of it here, that men will get very slight attacks of colic if they are a short period handling paint. Some of those cases from Prince Alfred Hospital were not cases of men handling lead continuously, but of men who had been painting for three or four weeks, and got definite attacks of colic. Those people are, therefore, definitely determined as being susceptible people, quite over and above any examination of the blood, or any examination for muscular weakness or loss of weight. The people ultimately lose the symptoms upon being removed from exposure to lead, and suffer no damage from it whatsoever.

9448. DEPUTY-PRESIDENT: The effect of the opinions you have given us and the effect of your experience, is that lead-poisoning is a definitely preventable disease.

9449. Given sufficient intelligence in and care of the persons who are exposed to the toxic effects of lead, there should be means available to prevent the lead-poisoning from developing in every case?—Yes.

9450. Mr. MANNING: You had got as far as the headache symptom?—Yes. Headache is another symptom which is complained of a great deal by painters. It occurs earlier in the painter than it does in any other lead worker. It may be caused by the inhalation of turpentine fumes, and Sir Kenneth Goadby has definitely stated that in his opinion the early headache the painter complains of is really due to the turpentine; and that is different from the headache you find in the other forms of lead workers not exposed to turpentine and which occurs later in the course of the disease.

9451. DEPUTY-PRESIDENT: Do you intend to give us some other evidence definitely directed at the toxic effects of turpentine?—Yes.

9452. Mr. MANNING: Is that all you wish to say about the headache?—Yes. Now I come to paralysis and muscular weakness. There are certain peculiarities of the paralysis of lead-poisoning, in so far as the muscles which are mainly affected are concerned, but the type of paralysis does not differ from paralyzes occurring from other poisonous conditions. For example, after alcoholism and after certain infectious conditions. The wrist-drop is the most familiar form of paralysis. Wrist-drop occurring especially upon both sides, is rather characteristic of lead-poisoning, but it may occur from other causes—just in the same way that foot-drop, the corresponding condition in the lower limbs, is most frequently found after alcoholic neuritis, yet may occur in some cases of lead-poisoning. I am merely stating this to indicate the difficulty in diagnosis. The next question, which is in many respects the most difficult, is the question of Bright's disease and arterio-sclerosis.

9453. That is a difficulty which presents itself in the course of diagnosis?—Yes. This is a disease which is very common in all classes of the population, especially among manual workers is it frequent. Medical science recognises many causes for Bright's disease and arterio-sclerosis.

9454. Why do you associate the two?—I associate the two because they are really different manifestations of the same conditions. They are

frequently combined and are really different manifestations of the same condition.

9455. That is, the nephritis is caused by the same agency as causes the hardening of the arteries?—Yes; of course nephritis is the more characteristic condition caused by lead. The causes that are generally recognised as frequently operating to cause these conditions are alcohol, gout, syphilis, lead, continued physical exertion, certain infectious diseases; and there seems to be no doubt that hereditary ailments play a considerable part in determining the incidence of these diseases.

9456. Mr. MANNING: Before you leave that, is turpentine one of the causes?—Turpentine is undoubtedly a very powerful irritant to the kidney, and continued exposure to a small quantity of turpentine must be a potent cause in the determination of Bright's disease. Now, there is no means of differentiating in the individual case between these various causes. There is no doubt that lead may cause and does cause Bright's disease. At Broken Hill we examined there and made special note of the incidence of these diseases in that population, all of whom had been exposed to lead. We there found that men who had been exposed for periods of varying length escaped any sign which could be attributed in any way to Bright's disease or arterial disease. The following figures represent those people who were examined who had symptoms which might possibly have been caused by exposure to lead. All of these people are not necessarily suffering from a condition caused by lead. They were people suffering from a condition which might conceivably have been caused by it. They include, therefore, the absolute maximum of possible cases. There is no doubt that a number of the cases included in this list are not suffering from lead-poisoning at all or are not suffering from a condition caused by lead in any way. Of the people in this particular group who showed kidney disease, 9·3 per cent. had been exposed for under ten years; 12·5 per cent. had been exposed between ten and twenty years; 33 per cent. had been exposed from twenty to thirty years, and 26 per cent. had been exposed for over thirty years.

9457. DEPUTY-PRESIDENT: How many units were there in the group?—There were 361.

9458. Mr. MANNING: On those figures, is this the correct heading—I am not certain if it is quite accurate—"Figures for those at Broken Hill showing no symptoms whatever that might be due to lead?"—Yes, that is the correct interpretation.

9459. DEPUTY-PRESIDENT: That is what I understood from Dr. Smith: that these percentages included men whose condition might possibly have been ascribed to exposure to lead, but in all medical probability was not due, in some cases, to exposure to lead.

9460. Mr. MANNING: Then the figure 9·3 per cent. means 70 out of 741?—Yes; this was the percentage of course, of all individuals examined.

9461. No, that is the exposure up to ten years, is it not?—Yes.

9462. Take that line: 9·3 per cent., 70 out of 741 exposed under ten years?—That is the total number of individuals who were exposed for that period of time.

9463. DEPUTY-PRESIDENT: So 741 is the number of units in the first group?—Yes, of which 9·3 represents the percentage.

9464. Mr. MANNING: The next is 12·5 per cent.?—Yes, which equals 68 out of 544 which is obtained from these figures, exposed from ten to twenty years.

9465. The next is 33 per cent.?—That is 97 out of 289, exposure from twenty years to thirty years; 26 per cent. represents 32 persons out of 123 exposed for over thirty years.

9466. Then you got 16 per cent., did you not?—Yes, 277 out of 1,697.

9467. Those are people exposed what you call freely?—Yes, freely.

9468. Before you leave that, there is a heading, "No symptoms of any kind whatever";—what is that?—No symptoms of any kind were shown by 91·7 per cent. of 741 men who were exposed under ten years.

9469. Will you give the figures?—That is 670 out of 741 exposed under ten years; 8·75 per cent.—176 persons out of 544 who were exposed from ten to twenty years; 6·7 per cent.—192 persons out of 289 who were exposed from twenty to thirty years; and 74 per cent.—91 persons out of 123 who were exposed for over thirty years. These figures were an indication of the incidence in that population, a population especially exposed to lead, and who were also exposed—just as any other population of its class is—to the other causes which will produce Bright's disease, for example. So that in cases of Bright's disease one has to recognise that there are various causes which operate to produce it, and there is no means of differentiating between these causes; there is no definite criterion of what constitutes Bright's disease caused by lead.

9470. DEPUTY-PRESIDENT: Has there ever been a clinical survey made of a population as to Bright's disease, a population not exposed to lead?—Not that I am aware of. I have, as a matter of fact, applied to the A.M.P. Society in order to get some statistics from them, but I understand that it is a matter of very great difficulty to get some statistics from their general business and from their Industrial Department. I have not yet received a reply from them. Other facts bearing upon this point I have collated from the records of the Royal Prince Alfred Hospital. These are the cases of chronic Bright's disease that have been treated there as in-patients between the years 1910 and 1918. These are the totals—in males, over 25 years, 297 cases were treated. I might here just interpolate that these figures may appear to be a little at variance with some published figures in the annual reports of the hospital, but that is due to the fact that in many cases one individual may be admitted to hospital three or four times during a year, and he will appear in the hospital records as four different persons. It is impossible, in surveying any large number of cases, to differentiate between them, but in going over any such small group as I have here I have been able to provide against that. As I said, 297 was the number of persons treated for Bright's disease in that period.

9471. They are all separate individuals?—Yes, males over 25 years of age. The occupations of these more important groups were: Painters, 6; plumbers, 3; carters, 14; seamen, 12; carpenters, 8; labourers defined, not lead workers (that is, labourers with defined work such as wharf labouring, bricklaying, and so on), 18; labourers undefined, 17; pensioners, mainly old-age pensioners, 36; and 2 patients simply marked down as returned soldiers. So that out of those 297 there were 55, namely, the undefined labourers, the pensioners, and the returned soldiers, who may or may not have been distributed amongst these other groups.

9472. Can you group them in the ages as well?—I have not actually done it, but I have all the data.

9473. It suggests itself to me, in the case of the pensioner, his case may be in the nature of a physical breakdown?—Quite so. Only two of them were invalid pensioners; all the others were old-age pensioners.

9474. The significance of the information you have given us in that connection would be very greatly increased, perhaps, if you could give us the record in age groups?—I can very easily do that.

9475. Do you draw any inferences from the classification you have made of occupation?—No, I think the numbers are too small.

9476. Mr. MANNING: Can you draw any inference as to whether painters are greatly affected or not?—No. I got these figures out to see if there were any clear indication that painters were more affected than other classes.

9477. What indication do you get of that?—I get none at all.

9478. DEPUTY-PRESIDENT: No positive—rather a negative indication?—I do not mean to say for a moment a carpenter is more liable to get Bright's disease than is a painter, but what indication you can draw from the figures is that the labourer seems to be more easily or more frequently affected by Bright's disease; but that, of course, is a fact that we know of, because we know the condition of physical strain operates very strongly in these cases. The figures are put in to show there is no clear preponderance in the case of painters amongst these 297 cases.

9479. Mr. CONNINGTON: There are a dozen other hospitals besides the Royal Principal Alfred Hospital?—Yes.

9480. Mr. MANNING: The doctor is giving evidence on this because he happens to be acquainted with the figures of the Royal Prince Alfred Hospital. We are not taking him as a statistician. We are asking him to give the statistical results merely of the hospital he has been associated with.

9481. Have you any other figures there?—No; that is all.

9482. You were going on to describe the effects of turpentine. Before doing that you have stated that lead in your opinion was a possible cause of Bright's disease?—Yes.

9483. And you mentioned a number of other possible causes, including amongst them turpentine, and you were going on to give special treatment of turpentine as a special cause of Bright's disease?—Before doing that I might indicate the differences that are noted clinically in the poisoning amongst painters as compared with poisoning amongst other forms of lead workers. We cannot speak very largely from one's own experience, because in Sydney, at any rate, we find no wide experience of lead-poisoning. The cases are not frequent enough for us to base our opinions upon in actual observation of any large number of cases. That is obvious, when one sees there are only ninety cases of lead-poisoning admitted into a large metropolitan hospital in twelve years, so one has to depend very largely for one's views and opinions upon authorities in other parts of the world.

9484. DEPUTY-PRESIDENT: What is the relative importance of the Royal Prince Alfred Hospital in the group of metropolitan hospitals?—In point of size I think it is about equal to Sydney Hospital. It may treat rather fewer people in the year. Of course it treats far fewer people in the out-patient department, but as far as in-patient work is concerned it is about equal in importance, in view of size, to Sydney Hospital. City accidents, speaking generally, are taken to Sydney Hospital. The Royal Prince Alfred Hospital and the Sydney Hospital are the two large metropolitan hospitals.

9485. What proportion of the medical needs of the community served by hospitals would the two hospitals together provide?—It would be a mere guess, but could be easily expressed by the number of treatments from the hospital records.

9486. Can you give us an approximation? What is the impression in medical circles with regard to it?—I think the two hospitals combined probably do three-quarters of the work amongst the hospital classes. These differences that exist between poisoning as seen in painters and other lead workers are founded very largely upon the English and American authorities, and Legge and Goadby has formed the conclusion (and it is really the classic in the English language upon this subject) there are in five respects some differences to be observed. They are as follows:—

- (1) Acute kidney symptoms are commoner amongst painters than they are amongst workers in white-lead factories.

- (2) The prevalence of gout amongst painters is greater than it is in white-lead workers.

From our limited experience, we can confirm that here.

- (3) Headache is an early symptom in the poisoning of painters, but it is a late and very grave symptom in the case of lead-poisoning in other industries.

- (4) The blood pressure is higher in painters than it is in white-lead workers, and workers in other industries.

These differences, it has been suggested firstly by Goadby and has been supported to some extent by Lehmann and Nichol, the authorities previously quoted, are due to the exposure to turpentine. We know turpentine to be a very powerful irritant to the kidney. The inhalation of turpentine also has other effects. It firstly is an irritant to the bronchial tubes and the main respiratory passages. It affects the nervous system, producing excitement, nervousness, and even fits, and above all, as I said before, it produces an irritation of the kidney and nephritis or Bright's disease.

9487. MR. MANNING: Would you compare lead and turpentine as an irritant?—No. Turpentine is an infinitely stronger and greater irritant of the kidney than lead, and it is an irritant which works much more quickly. Turpentine will produce its effect upon the kidneys in a comparatively short time, whereas lead takes a comparatively long time to produce any effect upon the kidney. Goadby conducted a series of experiments upon cats. Cats exhibit a very similar reaction to lead in the human, and by exposing cats to the vapour of turpentine without lead, and with various controlling experiments, he was able to produce various symptoms of the wasting, loss of sub-cutaneous fat, blood changes, including the punctate reds which we have previously discussed, and above all, Bright's disease in those animals by suitable controls, and he has definitely proved that those changes are due to the exposure to the fumes of turpentine.

9488. When you were comparing lead and turpentine as irritants I did not quite catch what you meant. Did you mean that it is possible that turpentine can affect the kidneys much quicker than lead?—Yes, it can.

9489. It can or it does?—It can do it. It is possible to do it.

9490. DEPUTY-PRESIDENT: In what way does turpentine show its toxic effects? You explained to us this morning that lead caused microscopical lesions in the organs and blood vessels. Does turpentine as inspired enter the blood and cause —?—It causes minute hæmorrhages in the kidney substance.

9491. And in the blood vessels also?—Yes, and in the blood vessels also. Goadby is of the opinion that these points of difference between the poisoning of painters and the poisoning of white-lead workers are due to exposure to the fumes of the turpentine element in paint.

9492. If the effects are the same, can any distinction be made between the causes?—No, I think it is quite impossible to distinguish between them.

9493. One knows from experiments then that lead and turpentine produce the same destructive effects in the human frame?—Yes.

9494. When exposure to them is made separately—when the human being is exposed to each separately?—Yes, similar changes are produced.

9495. And when the human being is exposed to both in combination, it is not possible to tell which has caused the destruction which has resulted?—No, it is not possible to tell. You can perhaps look at it in this way: we do know that turpentine is a much more powerful irritant than lead to the kidney, looking at the kidney effects. Acute lead-poisoning is nearly always gastro-intestinal. The other is nearly always renal. That is to say, the exposure to very large quantities of these poisons does not occur in dust; but it occurs in other respects.

9496. Can the destruction of tissue that is caused by the inhalation of turpentine be readily repaired?—Not the destruction of kidney tissue.

9497. That is, the effect is a chronic ailment?—Yes; that is so far as the kidney is concerned. I really cannot give an opinion about the other, except in so far as colic is concerned. Of course it is quite obvious that that is a passing phase.

9498. You would expect chronic Bright's disease to be caused by a reasonably long exposure to turpentine poisoning?—Yes, a long exposure to small quantities.

9499. Supposing one were subjected to a massive dosage of turpentine, what would be the result?—The result would be acute inflammation of the kidney, with very considerable destruction of the kidney substance.

9500. And death?—And death, in many cases.

9501. Mr. MANNING: That completes what you have to say on the subject of turpentine?—Yes.

9502. Will you go on to the association of other diseases with lead, particularly tuberculosis. You have had some Broken Hill experience which enables you to speak on that?—Yes. I might say that clinically lead has never been regarded as having any particular or special influence on the incidence of tuberculosis. In the text-books which deal with this subject I have been able to find no reference whatever to any connection between lead and tuberculosis. I have, for the purpose of this inquiry, searched, for example, every text-book in the library of the British Medical Association, and I can find no reference there to any conjunction between the two conditions. Perhaps the most authoritative book that one could mention in regard to the causes of tuberculosis is Corbett's *Causes of Tuberculosis*, published in 1918 in Cambridge. In that, though he discusses the effects of various trades upon the incidence of tuberculosis on the workers, he does not mention the question of lead. He, of course, discusses the essentially dusty trades, and he also discusses trades of the nature of textile workers, hair-dressers, hotel servants, and so forth, whom we recognise as people who are particularly susceptible to tuberculosis, but he does not mention anything of the relationship between lead and tuberculosis. I must confess that it was an entirely new view to me that there was any conjunction between the two.

9503. While you are on that, you have seen Mr. Sawkin's figures on that subject [*Exhibit No. 15*]?—Yes.

9504. Of course you do not want to criticise those figures in any way, but while you are on that I would like you to direct your attention to this: You see "*Tuberculosis, all forms, 90.4, page 128*"?—Yes.

9505. Those are figures which evidently you do not attribute to lead?—No, I cannot explain them at all.

9506. Have they anything to do with the occupation?—I think that is the only possible explanation of it.

9507. The fact that they work together in enclosed spaces very frequently, and may affect one another?—Yes. After all, tuberculosis is a definite infective disease.

9508. However, it has nothing to do with lead?—To my mind it has nothing at all to do with lead.

9509. And it is not recognised by any of the authorities as being caused by lead?—No. At Broken Hill, where we investigated a population which was exposed to both lead and tuberculosis to a greater degree than usual, we found that out of 361 people suffering from symptoms which might possibly have been due to lead-poisoning—that same group to which I previously referred—only nine of those cases had tuberculosis. Further, that of those 361 two classes, viz., cases with increased blood pressure, cardiac changes and albuminuria, and also cases with high blood pressure and albuminuria, which

two classes include those who most definitely have nephritis, that tuberculosis was found in those cases at all.

9510. Those are Dr. Chapman's figures, are they not?—Yes. Perhaps I had better leave that to him.

9511. I just want that noted, so that when Dr. Chapman comes along he can speak about the same thing, because I want him to deal with it specially. I want to identify them as being the same figures?—Yes. Perhaps I might summarise it by saying that out of those 361 cases, many of whom constituted that group who are possible lead cases, only nine were found to be suffering from tuberculosis. That is additional evidence to prove that the lead factor is not responsible for the rise in death rate as between 90 and 128.

9512. I do not want to bother you about anything further. I think you have given us a full review of the subject, and you have particularly dealt with one or two phases I wanted dealt with medically, viz., the Bright's disease aspect, and the tuberculosis aspect. I want you now to give the Board the benefit of your opinion—because this Board is asking for it on a number of different things—first of all, whether white-lead should be prohibited; and secondly, which is even more probable, the methods which might be adopted for the prevention of lead-poisoning. I would like you to give the Board the benefit of your opinion on the subject of methods of prevention which you have thought of?—Looking at it from the medical aspect, the question of prevention is wrapped up mainly in the question of dust prevention. It is not for me to say how dust is going to be prevented; I am not competent to express an opinion. But one feels sure that if persons employed in the industry can be prevented from inhaling dust containing lead, then a great step will have been taken towards the absolute prevention of lead-poisoning. I do not mean to underrate the advantages of personal cleanliness and training, and education in personal hygiene in the men employed. The cleansing of the hands, and care in the use of pipes in smoking, and in eating the food and so forth, is all of importance, although in my opinion secondary to prevention of dust. There is one aspect of the personal habits of the workman that I think is important here, and that is in regard to the cleaning and washing of overalls, because the danger from dirty overalls is more a dust danger than a danger of effecting the possible introduction of lead by the gastro-intestinal channel. The care of the mouth in persons engaged in the industry is also of very considerable importance as part of the care of general health. I think that some method of medical regulation of those engaged in the industry should be adopted. It is possible, as I have previously stated, to select those persons who are engaged in the industry who are markedly susceptible to lead. That can be best done by the investigation of cases who early show symptoms of injury by lead. Such persons should not be allowed to continue in the industry, or, rather, should not be allowed to be continuously exposed to lead.

9513. Would you advocate notification as ancillary to that remedy?—Yes. I think probably machinery which would render that possible would be best attained by a system of notification.

9514. And, I suppose, instructions to workers for the purpose of avoiding the risks which you indicate?—Yes, I think that probably men engaged in the industry could very well have some education in regard to the dust. The dust is not very obvious in the industry, and something which is not very obvious is not paid much attention to, I think, by the ordinary workers. Education also in regard to food and alcohol is of importance.

9515. You have had very considerable clinical experience and also this large experience at Broken Hill, where you specially investigated the position. I ask you generally now, as the result of your whole experience in all

departments, can you suggest any reason which would commend itself to a medical man for the prohibition of white-lead in paints?—No, I can think of no reason whatever that would justify that.

9516. DEPUTY-PRESIDENT: Do you express that opinion on general principles, or in relation only to what you have learnt by reason of your experience and your special studies with regard to lead? For instance, prohibition is one word of staving off a number of evils. Prohibition with respect to liquor, for instance, is one way of protecting the community from the evils of liquor. Prohibition of lead would be one way of protecting the community from the evils of lead. Do you express your opinion then solely with regard to lead or on principles of general reasoning with regard to the problem of prohibition?—Solely with regard to lead.

9517. MR. MANNING: I asked him medically.

9518. DEPUTY-PRESIDENT: They are both medical questions. The evils of alcohol are moral evils and physical evils, and the evils of lead are moral evils and physical evils.

9519. MR. MANNING: What I meant was, did he as a medical expert consider there were such dangers arising to the individual from the use of paint by reason of the lead that a reasonable remedy was that that should be prohibited, having regard to the dangers run by the people who work in the painting industry.

9520. DEPUTY-PRESIDENT: The matter is rather complicated, you see. There are some poisons which we cannot purchase. For instance, opium is a poison which we are not allowed to purchase. Lead may be put into the same sort of category; it may be proscribed in such a way that we shall not be able to handle it under any conditions.

9521. Do the same reasons which justify the prohibition of the use of opium apply to the prohibition of the use of lead?—No, not at all. They are two very different poisons in their effects.

9522. They are different in their effects?—And in their dangers.

9523. But assuming that the ultimate evil is that they both cause death?—You mean, assuming that they are both equally toxic, would one advocate then prohibition of lead?

9524. Yes. It seems to me that one must be influenced to some extent in advising against prohibition by matters of general relation and consideration?—Yes.

9525. I am wondering if your opinion is based solely upon what you have learned with regard to the toxic attributes of lead?—Yes, solely upon that.

9526. That is, the risk is so moderate as compared with the risks attaching to the use of opium?—Yes; there is no comparison between those risks.

9527. There is no suggestion of reason for the prohibition of the use of lead?—No. There is no doubt that men exposed to lead run risks, but those risks can be minimised by a proper regulation of the industry. The state of our knowledge now gives us the feasible and practical means of limiting that danger or of eliminating it.

9528. That is, because the disease is readily preventable, there is no reason why the use of the metal in any of its chemical forms should be prohibited?—Yes.

9529. Before we leave the subject of tuberculosis altogether, let me ask you this: if lead as inspired causes hemorrhages in the organs of the body generally, might it not be reasonably expected to cause hemorrhages in the lungs—those microscopical lesions?—Lead only causes microscopical hemorrhages in the cells of the blood vessels.

9530. What occurs in the case of the kidneys?—It sometimes causes microscopical hemorrhages in the blood vessels of the kidney, and sometimes it causes a very slow chronic inflammatory process in the actual kidney cells.

9531. If it caused a slight inflammatory process in the lung tissues, would not that encourage the development of tuberculosis in the weak spot?—It would undoubtedly cause fibrosis. That is, the change that occurs in the kidney is really a development of fibrous tissue. It would cause the same change in the lung—a fibrosis of the lung. We do definitely know that fibrosis of the lung does not occur in lead-workers.

9532. So, that for some reason that is not apparent, the destructive influence of the lead does not commence in the lung?—No.

9533. Can that be explained medically?—No, except this: that we know of all poisons that they have selective actions upon certain tissues. This is a point that occupied our attention very considerably throughout the Broken Hill investigations. The point as to whether the fibrosis occurring at Broken Hill was caused by lead was one that was very definitely in our minds, and we concluded that lead was not the cause of fibrosis in the lungs.

9534. Could it so reduce the disease-resisting power of the body generally as to make one a readier victim to the tuberculosis that lies in wait for all of us?—I think undoubtedly that a definitely established lead-poisoning, by its depriving the body of some of its natural resisting powers, would do that.

9535. Would you say that tuberculosis supervening in that way would be the effect of lead?—No.

9536. You would say it would be the effect of the anaemia, which was in its turn the effect of lead?—Yes. I do not think it can be definitely called a sequel of the lead-poisoning. You see, the preponderance of cases in lead-workers, as contrasted with the others is nothing of the same order as, for example, in the case of miners and certain textile workers. There, where a very definite occupational risk does exist, then the difference in the figures between the proportion of deaths due to tuberculosis in such populations as that, as contrasted with the ordinary population, is of tremendously high order. One finds, for example, in quartz miners that the death-rate in communities of quartz miners from tuberculosis is greater than the death rate in the whole of the painters.

9537. Could the waves of pneumonia that sweep over Broken Hill from time to time be in any way attributed to the effects of lead?—No, I do not see that there is any connection between them at all. In that one agrees with the opinions arrived at by other authorities.

9538. At any rate, whatever it may be, you do not regard lead medically as the proximate cause of tuberculosis?—No; there is no evidence at all to support that view.

Examined by Mr. CONNINGTON:—

9539. You think the principal danger comes from the dust?—Yes.

9540. As you stated, you are not in a position to say how the dust can be altogether avoided, or how it can be avoided at all. I can express an opinion upon that from our Broken Hill experience, where we have made experiments in regard to the amount of air that is necessary to remove dust. I meant that I was not in a position to give an opinion as to the actual methods that should be used in this industry.

9541. That is how I understood you. So far as painting work is concerned, you are not in a position to say how dust can be avoided in that industry?—No.

9542. But it is admitted, I suppose, that the dust is dangerous?—Yes, you can start with that.

9543. If, for instance, it is found that dust cannot be dissociated from the use of lead paint, what then would be your view?—My view as to what?

9544. As to the prohibition of the use of lead in paint?—If it were found that it was impossible to improve upon the present methods in regard to dust

9545. DEPUTY-PRESIDENT: If it were found that one could not paint without creating a lead dust?—I think that would constitute a strong argument in favour of prohibition.

9546. Mr. CONNINGTON: It has been stated, and I think it is admitted, that in painting work done with lead, after a certain period the oil evaporates and leaves the dry dust behind it; in other words there is powdered lead or lead in a decomposed form left; and I think it is admitted that it is possible for you to remove this lead by rubbing your hand on the surface. Would that dust constitute a danger?—No, I think the danger would be negligible under the circumstances.

9547. Would not that be precisely the same kind of dust as you have been referring to here? You see, the painter comes along and he brushes down and removes all those particles of dry lead which are remaining on the surface, and it is stated that he inhales part of the dust during the operation of rubbing down. Is not that the danger you were referring to?—Yes.

9548. Take the case of a house where the oil has evaporated from the lead; persons walk along and rub their hands along the surface, the dust falls off, and some of it adheres to their hands. Would not there be danger if they, without cleaning their hands properly, started to smoke?—I do not think there is any danger at all.

9549. You do not think there is any danger that way?—No.

9550. The danger, you think, would be through inhalation?—It is continuous inhalation; the taking in of small quantities continuously.

9551. Just casual contact with paint in that way would not be dangerous you think?—No, I am sure it is not.

9552. DEPUTY-PRESIDENT: Could it be said that we all run the risk of ingesting lead from the tinned containers?—There is some evidence in regard to that. An investigation was made into the health conditions of a lot of the American soldiers, who had no signs of lead poisoning, and it was found that a certain proportion of them contained lead which they ascribed to the containers. It was the only possible explanation they could give of it.

9553. If a man were constantly fed throughout his life on foods that were tinned, do you think the risk would be appreciable?—I do not think so. I think the quantities of lead would be so minute.

9554. Would that be parallel in any way to what occurs when the individual who walks along the street rubs his hand along the fence?—Yes.

9555. The risk would be no greater, you think?—The risk would be no greater. In the words of Dr. Hamilton, if he washed his hands in the soup after such an experience he would not get enough lead to talk about.

9556. Do you think the risk is intensified in any way in the case of children who are liable to play in the neighbourhood of painted walls?—No; I do not think that is a risk to be considered at all.

9557. You know the development of opinion in Queensland medical circles in regard to that?—I know the development of opinion in certain individuals in Queensland. I do not think it is in Queensland medical circles.

9558. Mr. CONNINGTON: I have not the authority in mind just now, but am I correct in holding the opinion that a painter affected with lead-poisoning may cause ill-health, and perhaps a greater danger to his wife by contact with her?—No, there are no grounds for such a belief.

9559. I think I have seen it put forward by medical men that there is that danger?—You mean a danger to the health of the wife from a man who is suffering from lead-poisoning?

9560. Yes, do you think there is?—No, I know of no danger whatever.

9561. Do you think there is any chance of the children of such a man being affected?—No, I do not think so.

9562. You do not subscribe to the view that there is anything in that suggestion of heredity?—No; there may be hereditary susceptibility to poisoning by lead.

9563. But not in the way I have suggested?—No, not in the way you have suggested.

9564. You know, I suppose, about the agitation in Queensland by certain doctors there?—Yes.

9565. They are regarded in medical circles as eminent men in their profession, are they not?—Yes.

9566. I think we had that opinion from a leading medical man the other day —

9567. DEPUTY-PRESIDENT: We had the opinion from Mr. John Goodwin, who is a responsible gentleman, but not a medical gentleman.

9568. Mr. CONNINGTON: I thought he was a medical gentleman.

9569. Do you know Dr. Dodds. Dr. Gibson, Dr. Matthewson, and Dr. Phelander?—I know Dr. Gibson and Dr. Dodds. Dr. Gibson is really the man who is responsible for that view.

9570. There is a statement attributed in the press to Dr. Dodds, which I will read and ask your opinion on. The statement is:—

“The President of the Association, Dr. Dodds, made the alarming statement that lead-poisoning was frequently the cause of blindness in children, deaths of infants, paralysis, and abnormalities, and of the high death rate in Queensland, due to eisanthema in pregnant woman. It was also the cause of the death rate through kidney disease of early adults.”

That is published in the *Brisbane Chronicle*. Did you hear that opinion attributed to Dr. Dodds?—Yes.

9571. Do you agree with that view?—I think it is a very ridiculous statement.

9572. You think it is?—Utterly ridiculous.

9573. It runs almost as far as the suggestion I was putting to you immediately before—

9574. Mr. MANNING: This a statement by a newspaper. It may be a doctor's statement or it may not. All we know about it is that it is something out of a newspaper. I do not like to interfere with the cross-examination, or I would have objected to that. I did not think that even my friend would take it seriously.

9575. Mr. CONNINGTON: This is a statement attributed to Dr. Dodds in that Brisbane newspaper, and I ask you for your expression of opinion on it?—If Dr. Dodds did say that—personally I do not think he did—but if he did say it: it was an entirely ridiculous statement.

9576. A statement which is attributed to Dr. Phelander runs in this manner: This is the sort of thing that the average man is asked to form his opinion on, and I think it is only proper that I should bring this matter before this tribunal and have your views with regard to it—

9577. Mr. MANNING: I do not know, Mr. Deputy-President, whether you think it is right that this should be done. It would not be tolerated for a moment in a court where there were parties to litigation. To cross-examine a witness about something that is attributed to some other person by an editor of a newspaper is absolutely absurd.

9578. DEPUTY-PRESIDENT: It is one way of finding out whether Dr. Smith entertains those opinions.

7579. Mr. MANNING : Yes, but he can be asked whether he entertains them. It is the form of the question I am objecting to, because it goes down in the notes as though some responsible doctor said it.

9580. DEPUTY-PRESIDENT :—Mr. Connington has had a very difficult case to support all through, merely because it has not been possible for him to get medical opinion as freely as he desired to have it. I therefore do not want to add to his difficulties in any way by restricting the form of his questions.

9581. Mr. MANNING : I do not like to either, but I think this is going too far.

9582. Mr. CONNINGTON : If the question in the notes reads as I have put it, that it is attributed to the *Brisbane Chronicle*, surely one does not need to repeat the name of the paper every time.

9583. DEPUTY-PRESIDENT : Your question would be entirely unobjectionable if you were to say, "Do you entertain this opinion?"

9584. Mr. CONNINGTON : I do not see any difference, myself, but I will make that distinction right through.

9585. DEPUTY-PRESIDENT : I would like you to understand the purpose of Mr. Manning's objection. Mr. Manning does not want the opinion of Dr. Phelander to appear in evidence as the opinion of Dr. Phelander, who has not been called, and who cannot be cross-examined, and it is not really fair that our notes should carry his opinion.

9586. Mr. MANNING : Mr. Connington, would you mind me having a look at the extract for a moment?

9587. DEPUTY-PRESIDENT : You might ask Dr. Smith if he entertains that opinion, and if he does not, you can ask him does he refuse to entertain it, even though so eminent a doctor as Dr. Phelander has entertained that opinion.

9588. Mr. MANNING : This is an extract from the *Brisbane Daily Standard*. That is the Labour organ of Brisbane.

9589. Mr. CONNINGTON : I thought it was from the *Chronicle*. The other extracts are from the *Chronicle*, and I thought this one was also.

9590. Mr. MANNING : The position is now this, that Dr. Smith is being examined on presumably what Mr. O'Brien has told Mr. Connington is a true copy of an extract made from a paper called the *Brisbane Daily Standard*, which, in its turn, attributes some remark to Dr. Dodds, which he may or may not have made. Those are the ramifications which we have to go through to get to the source of this. You might just as well ask the witness, "Do you know Mr. O'Brien has told me that this document which he hands me is a copy of an extract out of the *Daily Standard*, of Brisbane, which purports to reproduce an expression of opinion which may or may not have been attributed to Dr. Dodds?" That is the proper form of question.

9591. Mr. CONNINGTON : We have the cutting here, if it is desired that we should establish the correctness of it. I am not prepared to accept the responsibility of saying to the doctor—

9592. DEPUTY-PRESIDENT : Do not be afraid of it, put the question to him.

9593. Mr. CONNINGTON : But I do not understand these things. I am not prepared to say to the Doctor, "Will you agree that there is a possibility of such and such a thing?"

9594. DEPUTY-PRESIDENT : Why not? You incur no risk in putting your question in that way.

9595. Mr. CONNINGTON : But I feel that on medical matters such as this I would prefer to quote the authority. I would prefer to put my question in such a way as to prove to the doctor and to everybody else that I have good grounds for asking questions dealing with medical matters. I admit that I have no knowledge whatever as to the chemical or medical aspect.]

9596. It has been stated in the newspaper as attributed to a medical man that the adult workers in the Blind Institution gave indications that in childhood they had been affected through lead. Can you give any explanation for that, or would you believe that children have been affected by lead, and that in some way or other contributed to their blindness in after life?—It is undoubted that lead poisoning in some rare cases causes blindness.

9597. DEPUTY-PRESIDENT: And it does occur to children?—There is no reason why it should not occur to children as much as to other people, but that is all one can say about that statement, except that it is a very rare occurrence for blindness to result from lead-poisoning. It does occur, but it occurs but rarely.

9598. MR. CONNINGTON: Can you give any theory as to how children contracted ill effects from lead?—The children generally would not be employed on lead painting?—No. There are many cases on record where people have suffered from lead poisoning from drinking waters containing lead.

9599. Without ever coming into contact with lead or its products?—Yes.

9600. DEPUTY-PRESIDENT: Would you suggest that that case is more likely to be found in countries where water is conserved in house tanks?—I think so. I think the amount of lead that would find its way into water from mere conservation in house tanks is negligible.

9601. Supposing a roof were painted, and supposing the paint were decomposed, and the powdered lead paint were swept into the tanks, would not you suggest then that there would be a risk? Under those circumstances there would be a risk, but I do not think you could tell after a period of years in an adult where blindness dating from the childhood of any individual was due to lead. There would be nothing to distinguish it from blindness arising from other causes.

9602. I take it, from the little attention I have given to the matter, that Dr. Gibson's theory is that optic neuritis in children as it occurs in Brisbane is probably caused by the ingestion of lead?—He goes further; he says definitely that it caused by lead.

9603. It is the ingestion of lead, not the inspiration of lead?—No, the ingestion of lead from the finger nails of the children who run their hands along the palings. I should say that his investigations are such as would not carry any weight with a scientific body.

9604. MR. CONNINGTON: And, of course, the question of prohibition or otherwise of lead is a world-wide subject?—Yes.

9605. One wants to know all that is to be said on the question?—Yes.

9606. Would you think that lead-poisoning could be contracted by children rubbing their hands on verandah posts and fences and the like when it had reached the stage that decomposition had set in, and it was in a form that was removable by touching it?—No, I do not think so.

9607. That is one of the grounds that is put forward by the persons advocating the prohibition of lead?—Yes.

9608. But your opinion is that no injury could come to children in that way?—Very definitely my opinion is that.

9609. The attack would be too casual?—Yes.

9610. And of insufficient duration to warrant you thinking that permanent harm could come to the children?—Yes, I think that if every particle of lead that a child, by rubbing his hands upon the fence, would introduce into his body through the gastro-intestinal tract were introduced, no harm would result.

9611. And a contention for prohibition based on that assumption would, you think, be somewhat exaggerated?—Absolutely groundless in my opinion.

9612. You think it would be altogether groundless?—Yes.

9613-14. I am stating the view of somebody else in this connection, as being one of the grounds for the prohibition of white-lead. You think there would be no danger at all that way. Your opinion, looking at it from a medical point of view is that you cannot see any good and sufficient grounds to justify you in expressing an opinion that lead should be prohibited for painting purposes?—Yes.

9615. With regard to preventives you think the danger of absorption through the skin is not very great?—Yes, I think it is quite negligible.

9616. Suggestions that real positive danger exists in lead being left on the hands or parts of the body do not find much favour with you?—No, not in so far as absorption through the skin is concerned.

9617. That is what I am referring to?—No, I think nothing of that.

9618. You do not think there is a great deal in that?—I think there is nothing in it at all.

9619. The danger is from the inhalation?—Inhalation, and in a very secondary way from the conveyance of the lead into the mouth.

9620. Which would be another form of inhalation you might say; in other words, it gets inside the body, but in another way?—Yes.

9621. You think that would be the real danger?—Yes.

9622. DEPUTY-PRESIDENT: Except to this extent, that the doctor has already told us that a good deal of the lead that goes into the stomach is made insoluble by the gastric juices. All the lead which goes into the lungs in a soluble form remains soluble and passes into the blood.

9623. Am I interpreting your evidence correctly?—Yes.

9624. Mr. CONNINGTON: Then the washing facilities that are provided can only be regarded as useful from the standpoint of the prevention of lead dust, so far as they help to cleanse the body and remove the possibility of any dust entering the lungs per medium of the hands or some utensil that may be used?—Yes.

9625. Part of your evidence suggested that when a man was found to be poisoned with lead, he should be removed from the occupation?—Yes.

9626. You think that his removal is essential for the man's own safety?—Well, it is the safest thing to do. I have no doubt that many men who show some signs of susceptibility . . .

9627. I have reached the stage where the man has become lead-poisoned?—I think such a man should be removed from the industry, because I think it is the safest thing for him. I think if he continues in the industry he is deliberately facing certain risks. He may not suffer, but he may.

9628. I think it is generally considered in medical circles—at least that is the inference I have drawn from the evidence given here, and from the little I have read of it—that a man once he becomes poisoned, should leave the industry?—Yes.

9629. It means certain death if he continues to come into contact with lead?—It does not mean certain death, but it means that he runs a risk of suffering certain damage if he continues in the industry. He only runs a risk; he is not certain to attain it.

9630. But it will shorten life?—He is not certain to have his life shortened but he runs a greater risk of shortening it than he ought to.

9631. Generally speaking, if you had to express an opinion one way or the other, and had to give a decision on the matter, you would say that the man should be prohibited from continuing in the industry?—Certainly.

9632. Once it was found that he had been lead-poisoned?—Yes, certainly.

9633. With regard to the figures you gave us, they referred to Prince Alfred Hospital?—Yes.

9634. Really, to find out how far we can get assistance from hospital records, it would be better to have the figures from all the principal hospitals?—Yes.

9635. I mean, it may be that all the painters might go to Prince Alfred Hospital, or for some other reason they might go to the Sydney Hospital?—Yes.

9636. To make the figures of any value for statistical purposes it would be better to have them from all the hospitals?—Yes. You will really only be able to get them from the Sydney Hospital here, because the system of records in those two hospitals are the only ones which would enable one to get the information.

9637. You would not suggest that any inferences could be drawn, or any decision arrived at, merely on the figures you have given us?—Yes, I think they are an indication. It is a big metropolitan hospital that apparently draws its patients from the industrial population surrounding it, and a certain number of cases from the country. I take it that they are a fair sample of the working men that go there to be treated. Those figures bear out the impression, I think, that most physicians have formed, that lead-poisoning is not a common condition here at all, and that when it does occur it is comparatively slight.

9638. I am dealing more with the tuberculosis aspect of the question now. Did not you produce some figures that there were six cases against 14 carters?—That was Bright's disease.

9639. That was what I had in mind, and not the lead-poisoning. Still, I suppose what you have said with regard to Bright's disease would apply also to lead-poisoning?—Yes. What I mean to draw from these figures is a general inference that painters are not particularly susceptible in so far as the Prince Alfred Hospital experience goes, over and above similar classes of men working in other occupations.

9640. Taking it from the standpoint of mortality, it certainly seems to indicate that the average deaths per thousand is much greater amongst painters in regard to tuberculosis and Bright's disease than with regard to the rest of the community?—I do not think it is much greater; I would not call it a substantial amount. If you take those figures which the Deputy-President drew my attention to just now the difference is between 90 and 123 per 1000. That is a difference of 38 per 1000.

9641. That comes to about 25 per cent?—Yes. That to my mind definitely indicates that there is a greater incidence of tuberculosis amongst painters but it is not a very considerable one when one compares it with other occupations.

2642. It is considerable when you compare it with the result of your figures 6 to 14 of carters, and taking carters to be comparable with the other portions of the community?—Yes.

9643. There is a remarkable difference there, is there not?—Yes.

9644. DEPUTY-PRESIDENT: Could the toxic effects of turpentine have any effect on the tubercle-resisting faculty of the lung?—We have no data upon which to base any expression of opinion upon that point. After all, our knowledge of the effects of continual doses of turpentine is of comparatively recent date. I do not think it was really first seriously tackled until as late as 1889.

9645. There is no study or evidence of a population exposed to turpentine risks having suffered peculiarly from tuberculosis?—No.

9646. There seems to be great need for occupational morbidity statistics?—Yes, there is. It is very difficult indeed to get them at all. The hospital records have not been kept with that in mind particularly, so that it makes it quite a labour.

9647. Do you not think that medical science would be very greatly advantaged if more attention were paid to hospital statistics?—Yes.

9648. MR. MANNING : I understood you to give this answer to Mr. Conington, that, if dust cannot be disassociated from the use of lead, your view is that that is a strong argument in favour of prohibition. Having regard to the fact that, from the year 1909 to 1913, *i.e.*, four years, there were only six deaths from lead-poisoning, would you think that a strong argument is in any way weakened?—Yes. I did not mean to say that that would to my mind clinch the question of prohibition by any means.

9649. You were referring to the presence of dust as being a dangerous element?—Yes.

9650. DEPUTY-PRESIDENT : I took the doctor to mean clearly that, if a man were compelled to work in an atmosphere in which lead dust was freely suspended, he would suffer so greatly that it would be proper to prohibit his freedom to work in that atmosphere.

9651. MR. MANNING : Yes ; and then that becomes a question of degree.

9652. DEPUTY-PRESIDENT : Of course it does.

9653. MR. MANNING : That is why I asked him this question on the figures put by Mr. Sawkins.

9654. DEPUTY-PRESIDENT : The figure would seem to indicate that the men do not work in an atmosphere heavily laden with dust.

9655. MR. MANNING : Exactly.

9656. You were asked about blindness in children. Have you ever seen a case of blindness in children caused by lead?—No ; and I never heard of a case occurring in Sydney.

9657. You were also asked about ocular neuritis in Queensland, and I understood you to say that there was no proof that that was due to lead?—No ; there was no satisfactory proof that there was lead at all. It was largely an assumption on the part of Dr. Lockhart Gibson that it was due to lead, because he could not account for it in any other way.

(Witness retired.)

[At 4.10 p.m. the further hearing was adjourned until 10 a.m. on Tuesday, 2nd August.]

EIGHTEENTH SITTING.

TUESDAY, 2 AUGUST, 1921.

(The Board met at University Chambers, Elizabeth-street, at 10 o'clock a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY

MR. COOPER.

HENRY GEORGE CHAPMAN, sworn, examined by MR. MANNING :—

9658. You are a legally qualified medical practitioner?—Yes.

9659. You are Professor of Physiology of the University of Sydney?—Yes.

9660. I believe you were formerly Professor of Pharmacology?—Yes.

9661. Since 1903 you have taught the medical students the action of drugs?—Yes, I have had charge of all the works in drugs since 1903.

9662. And you are Honorary Pathological Chemist at the Royal Prince Alfred Hospital?—Yes.

9663. And Chairman of the Technical Commission of Inquiry at Broken Hill?—Yes.

9664. I understand you have carried out studies in connection with lead for over twenty years?—Yes.

9665. And in 1898 you devised a method of detecting lead in excreta?—Yes. In 1898 I devised a method for discovering small quantities of lead in the excretions of the body, and that led to my continued interest in the subject of poisoning by lead.

9666. DEPUTY-PRESIDENT: Have you published any works?—Yes, I have published quite a number of papers on the subject of poisoning by lead.

9667. Are they papers to which you would like to make reference in this connection?—Not specifically in this connection, No.

9668. Mr. MANNING: We may take it, from work you have done in this connection, you have become thoroughly acquainted with the chemical action of lead on the —?—Yes.

9669. And the liability of the human body to become affected by the influence of lead?—Yes.

9670. First of all, I want you to apply your mind to the effect of lead on painters who deal with white-lead. First of all, you deal with the means of entry of lead into the human body?—Yes; the methods by which lead enters into the bodies of painters are two: the first is the inhalation of lead-dust into the lungs, which is the principal source of poisoning by lead in painters; secondly, the ingestion of lead through the mouth into the digestive tracts. There is very little danger of absorption through the skin, if any at all. In the case of painters there is no danger of the inhalation of lead fumes. The vapour pressure of lead at the temperature at which painters work is practically nil.

9671. DEPUTY-PRESIDENT: Are you speaking now of lead in all its chemical forms, or only of the hydrated carbonate of lead?—I think, as far as paints are concerned, it applies to all forms of lead in paint.

9672. That would be sulphides, sulphates, oxides, and carbonates?—Yes, as far as they are used.

9673. Mr. MANNING: You have told us the general channels of entry into the human body?—Yes, in painters.

9674. In the preparation of your evidence you have, I understand, gone on to the various degrees of susceptibility and toleration of individuals?

9675. DEPUTY-PRESIDENT: If the doctor will pause before answering that question, Mr. Manning, I would like to ask something.

9676. What is your significance of distinction in the last few words you used in the case of painters; you are limiting your evidence strictly to painters?—Strictly to painters, yes; not poisoning generally.

9677. Will you indicate later how lead-poisoning may occur in the cases of other industrial workers?—I mention methods such as vapours, which are common in other occupations, but which are absent in painters, although at one time people used to suppose that the fumes of lead affected painters. In the same way it used to be supposed that lead was absorbed through the skin of painters. We now know there is only one industrial danger in the case of painters, and that is the inhalation of dust containing lead.

9678. So whatever emanations are given off when the flame of the blow-pipe is in contact with the painted surface, they would not be dangerous to the operative?—No, not as a source of lead-poisoning.

9679. Mr. MANNING: Then you found it convenient to divide the subject of lead-poisoning up into its effect upon painters and its effect upon people who are not painters, and you deal now with the subject of its effect upon painters?—Yes.

9680. I suppose that subject requires slightly different treatment to the ordinary cases of lead-poisoning?—Yes, quite different. The principal channels of infection might be quite different.

9681. If it is desired, you are also prepared to give any evidence on the subject of lead-poisoning of persons other than painters, later on?—Yes.

9682. DEPUTY-PRESIDENT: Can you give us the benefit of your experience at Broken Hill, in contrast?—I intend to deal with that.

9683. Mr. MANNING: The manner in which Professor Chapman will give his evidence is really his own arrangement, not mine. He has had such a vast experience of these things that one really cannot improve on the treatment of the subject as he will give it to us. If anything further in the way of information is required, the Board will be able to get it.

9684. You deal with the various susceptibility and toleration amongst individuals?—Yes.

9685. What is the significance of that heading?—When lead is introduced into the body of different persons it reacts differently?—Some persons are much more susceptible to the action of lead. They exhibit symptoms of poisoning more quickly, and they also show more severe symptoms. Others, on the other hand, are very tolerant to lead, and can take considerable quantities of lead into the body without showing any signs of poisoning. A comparatively small percentage of persons are highly susceptible to lead. In many occupations such persons show symptoms of poisoning in two or three weeks after exposure to lead. The great majority of persons when first brought into contact with lead show some effects. They lose weight; they become to a slight degree anæmic; but in the majority of persons after a few weeks these effects pass off and the individuals become tolerant to lead.

9686. That is how tolerance operates? Yes. If we then take a population of that kind, we find there are increasing grades of resistance to the exhibition of symptoms of poisoning.

9687. Before you go on to develop that, do you attach significance to the idea of tolerance, particularly in the case of painters?—Yes.

9688. And significance also to those people who should become susceptible to it?—I think it runs, in the case of painters, in this way: you cannot say simply because they take in lead that they are poisoned by lead. That is, they are not necessarily injured even after they have been taking in small amounts of lead over a long time. When you examine them you cannot find symptoms of any kind.

9689. DEPUTY-PRESIDENT: Would you call that period which occurs between the receiving of the lead and the adjustment of the body to its influence, a period of poisoning?—In one sense you might, yes; but in that period you do not get the ordinary symptoms and signs of poisoning by lead. That is, the symptoms we usually take as being symptoms of lead-poisoning do not occur. As I say, there are two slight changes, such as loss of weight and anæmia, but they are not changes from which we can diagnose lead-poisoning. They are quite different from those occurring in persons who in two or three weeks become poisoned and show symptoms of poisoning by it.

9690. When there is necessity for the adjustment of the body to exterior influences of any kind, would the period in which that adjustment was being experienced be regarded as a period of sickness, medically?—No, not always; I do not think usually.

9691. For instance, there is an adjustment to climatic conditions, is there not?—Yes.

9692. When the climatic changes should occur, is that regarded as a period of sickness from the medical standpoint?—No.

9693. So that really it is a case, not of poisoning, but of absorption and the adjustment of the economy to the new burden that it is sustaining?—Yes, it is an adjustment to unusual conditions.

9694. Mr. MANNING: You were saying that in communities you noticed the operation of this tolerance you have spoken of, and you were going on to

describe your experience in that connection?—When we were at Broken Hill we made an attempt to measure the degree of this resistance, to find out what proportion of persons exhibited different amounts of resistance.

9695. And you carried out those investigations in collaboration with Dr Smith, I understand?—Yes.

9696. And you compiled certain figures?—Yes.

9697. And it was those figures Dr. Smith was speaking of when giving his evidence?—Yes.

9698. Will you continue your evidence?—In determining the degree of resistance I may give figures of 3,968 persons examined at Broken Hill. We divided these persons into two groups: first, 1,697 persons who were exposed to something which we will call a considerable degree of lead dust.

9699. DEPUTY-PRESIDENT: In what form?—In the form of lead sulphide originally. A small amount of it probably oxidised. But these persons were all of them at one time or another, or most of them, exposed to small amounts of carbonate. In regard to persons of this group, from time to time, similar persons to those examined, and even some of those who were examined, died. In the case of every person belonging to this group we found lead in their lungs, so there is no question the members of this group were markedly exposed to lead.

9700. By Roentgenological processes?—No chemical processes. Wherever we made a post-mortem on a person similar to those of this particular first group, we found lead in the body. We did not always find lead in their excreta. In this first group we found 267, or 16 per cent. out of 1,697, exhibited symptoms which might possibly have been due to lead. What we can say very definitely is that the whole of the rest, besides the 267, namely 1,430, that those persons exhibited no symptoms or signs of any kind whatever that might be attributed to lead. Taking the distribution amongst those 267, 70 out of 741 had been exposed for under 10 years. That is, 9·3 showed symptoms, and 670 out of 741, or 91·7 per cent., showed no symptoms of any kind whatever. Sixty-eight out of 544 had been exposed to lead for less than twenty years, but not more than ten years.

9701. MR. MANNING: You mean the 544 were exposed?—Yes.

9702. As you put it, it might read the sixty-eight were exposed?—No; sixty-eight, or 12·5 per cent. of the 544, had symptoms; 476, or 87·5 per cent., showed practically no symptom whatever of lead. Of course, they might have had other illnesses. I draw attention to these percentages, which are free; there were 91·8 and 87·5 free of any symptoms, and 9·3 and 12·5 represent the limit of affection. Now we pass to a group of quite different figures. That is, 289 persons we examined had been exposed to dust for less than thirty years but more than twenty years. Out of those, 97, or 33 per cent., had symptoms of one kind or another, and 192, or 67 per cent., were free. You notice a very considerable change in the figures at that point, after twenty years. Then there were 123 persons who had been exposed for over thirty years. Of those, 32 persons, or 26 per cent., had symptoms, and 91 persons, or 74 per cent., were free. The 74 per cent., of course, is a little greater than 67, but that was probably due to the numerical size of the groups. I draw attention to that as showing the variability you find in regard to figures. One would not assume for a moment persons who had been exposed for thirty years were less likely to be affected than—

9703. DEPUTY-PRESIDENT: Unless the weakest have already gone to the wall?—Yes, that is possible. In regard to those figures I would like to point out that other affections besides lead poisoning were, of course, included.

9704. MR. MANNING: Other symptoms besides lead-poisoning?—Yes

9705. Are you leaving those figures now?—Yes.

9706. Those are figures to which, rightly or wrongly, you attached a considerable degree of importance in your investigations?—Yes.

9707. Do they form the basis of your examination of the problem at Broken Hill?—Not those figures entirely, but they are part of the statistical work. There is another big group I will refer to later on, but I do not want to use them now. I only put those figures in to point out how the longer persons are exposed to lead the greater the proportion affected. Those are only one-third of the actual number examined.

9708. DEPUTY-PRESIDENT: I understand you to say you are going on now to discuss other illnesses in the groups you examined?—No, I am not going to deal with those.

9709. Will you tell us what you regard as the indicia of lead-poisoning? When you distinguish one man from another as being poisoned from lead, what are—?—We recognise three types of lead-poisoning; first, the alimentary type or gastro-intestinal type; secondly, the type affecting the nervous system; and thirdly, we are quite satisfied, after going to Broken Hill, there is a nephritic or arterio-renal type.

9710. So the indicia would be confined in relation to each one of those three physiological areas?—Yes.

9711. And they would be in the form, I take it, of actual damage to the organs in that area, if the nerves could be generally referred to 50?—Yes. I think so.

9712. Physical damage?—There is no very marked physical damage in the intestinal type. A person has an attack of colic, but if you examine the alimentary canal you cannot see anything. If a person is killed by an attack of colic, I do not think, in post mortem, you could say there was lead-poisoning. But in regard to the other manifestations, those of the nervous system and the kidney, you would actually find changes in the body which would lead you to infer that those conditions were present.

9713. Mr. MANNING: Those are the three types that you have mentioned?—Yes. There is another point about susceptibility I would like to draw attention to, and that is, some persons are so susceptible to lead-poisoning and get it so easily, that when they get it so easily they take in sufficient lead to get very severe forms. I hold very strongly that persons who exhibit symptoms of lead-poisoning within a few months of being exposed to lead should be prevented from following an occupation in which they come in contact with lead.

9714. DEPUTY-PRESIDENT: Does not the condition of a man's health, so far as reaction to lead-poisoning is concerned, largely depend on the extent of the dosage? Could there be a massive dose administered to any one of us here and immediately follow a reaction in the form of lead-poisoning?—No. If you take a single dose of lead or several doses close together you do not, as a rule, get any signs of lead-poisoning.

9715. Suppose those massive doses were repeated on three occasions?—Yes, I think you could poison a person with lead by repeating the doses.

9716. It might be a man's misfortune that he is liable to meet with accidents which would subject him to massive dosage in that way.

9717. What do you mean by "massive dosage"?—If you give a person three grammes of soluble salt of lead and he swallowed it—

9718. I do not mean in that way, but by inhalation. If a man is on three different occasions sent into a flume, a passage where there was carbonate of lead in a powdered form, might he not develop acute symptoms of lead-poisoning?—I do not think so, unless he were susceptible. I think, taking the ordinary person, he could go into a lead dust which would contain a very considerable amount of carbonate of lead. People work in dusty places in mines, where one knows from the figures of the dust about what quantity

of lead they are taking in. Apparently many persons work in those places without showing any signs of lead-poisoning at all. They are exposed for a shift, of eight hours for probably five times a week---

9719. But not the lead in the form of carbonate?—Yes, exposed to carbonate. I mean, they have been exposed at Broken Hill. There are still quite a large number of persons exposed to carbonate areas amongst those persons with 30 years' exposure who show no signs whatever of lead. But taking one's ordinary experience, one would say the average man put into that dust would not show signs of acute lead-poisoning, and any person exposed in that way developing signs in three or four weeks is, I think, undoubtedly a susceptible person.

9720. MR. MANNING: You mention your opinion on that subject as applying to people showing susceptibility after short exposure?—I think that they should be excluded.

9721. Having regard to that, you answered the question put to you by the Deputy-President in this way: You say you think that even in cases where large quantities of lead are taken in, say by accident, in the early stages, you think they also, upon showing signs of lead-poisoning, should be regarded as susceptible?—Yes.

9722. Do you draw a distinction between those individuals and the individuals exposed in the ordinary way to ordinary risk, and showing symptoms in the early stages?—Yes. I draw an absolute difference between them. By a susceptible person I mean a person who develops a condition which can be recognised by any ordinary medical man as lead-poisoning. That is, that person suffers from one of the characteristic types of poisoning by lead.

9723. When you say that, I take it you speak of people only exposed to the ordinary risks, and not the extreme risks mentioned by the Deputy President?—I mean exposed to any such risks as are met with under ordinary industrial occupations.

9724. But not in special cases where you supply an unusual quantity of lead dust to see what the effect would be for inhalation?—I think that might be an experimental way of discovering the susceptibility. I would not like to try it myself, but my feeling is that the ordinary person is not very susceptible to lead.

9725. In those cases you think that they should be excluded from the industry?—Yes. In this connection I would like to point out that many people hold that the mortality from lead-poisoning, which has not been diminished greatly of recent years, is due to the fact that susceptible persons have not been removed from the industry. While there has been a great diminution of cases, the mortality has not diminished in the same proportion. Many people hold that no steps have been taken to remove susceptible people from the industry. They supply the fatal cases.

9726. DEPUTY-PRESIDENT: That is, while provision is made for the repression of dust, the prevention of the creation of dust, the few people who are affected become fatal cases?—Yes. The actual diminution in the amount of lead does not prevent those persons from becoming poisoned, and apparently the poison goes on to a fatal issue. Anyway, that is the opinion of Legge and Goadby.

9727. MR. MANNING: You were dealing with the forms of lead-poisoning, and divided then into three classes?—Yes. The most common form is the alimentary type, with gastro intestinal symptoms—nausea, colic, and constipation. Then we have the nervous type with characteristic symptoms of paralysis and with a certain amount of cerebral affection and insanity. Finally we have the arterio-renal or nephritic type, with ordinary symptoms of

Bright's disease. Whether lead is absorbed into the body through the lungs or the digestive tract it may produce any type of poisoning.

9728. Whatever way it is taken in?—Yes. Rapid absorption and the entrance of large amounts of lead into the body usually give rise to disease in the nervous form. The absorption of less lead, usually over a longer period, leads to the alimentary form. Absorption in those two cases produces the two types of lead-poisoning which have been recognized for years, but there appears to be good evidence now that the long-continued absorption of traces of lead over periods quite different to those which produce the other forms of disease, gives rise to changes of the kidneys. From an examination of the whole of the figures at Broken Hill we think that the kidney lesions develop after 20 years.

9729. DEPUTY-PRESIDENT: Do you mean to say there is no sickness of the kidneys at all until a period of 20 years has elapsed?—Between 10 years and 20 years they first make their appearance. Up to 10 years, there is none. Between 10 and 20 years it is difficult to say. After 20 years some make their appearance. I will give the Board some exact figures for this later, to show exactly how they come out. The actual amount of lead makes a difference. I have already given you some figures for 1,697 persons at Broken Hill exposed freely, of whom 267 had symptoms and 1,430 were free. There is another group which was examined at Broken Hill comprising 2,271 persons who were much less exposed to lead. I am of opinion that in some of those persons, if we examined the bodies, we would find no lead; but they had been all exposed, in some degree, to lead. When we come to that group, only 197 were affected with symptoms of any kind, or 8·6 per cent. 91·4 per cent. were free, or 2,065 persons. In connection with the absorption of lead—

9730. Were those men of any particular occupational group?—The 2,271, no. They were made up of mill-workers, surface labourers, pipe-fitters underground, platmen underground, engine drivers underground. They included all underground workers except miners, and they included all surface workers, of whom one or two would have a fairly considerable exposure to lead; that is, people who work in "crackers" at the top of mills, and people who at the end of the process of concentrating the lead handle the concentrates. They are very much exposed there. They would be handling dust with about 65 per cent. of lead in it.

9731. Are there but few men engaged in those processes?—There are not many. The big group is the miners, 1,697, all of whom had fairly constant exposure, although for different periods of time.

9732. And the bigger section, 2,271, would be surface workers not gravely exposed to lead dust?—No. With regard to the amount of lead absorption by painters, since about 1908 I have conducted chemical examinations of all the painters who were in-patients in the Royal Prince Alfred Hospital, and I made estimation of the amount of lead in their excreta. We found that in persons brought into the Prince Alfred Hospital who had been exposed to lead, they had sometimes become free from lead in about three months. We have never seen a case in Sydney in which a patient was not free from lead in six months after leaving the industry. That experience is quite different to what we observed in Broken Hill, and, as a matter of fact, it greatly mislead us when we went to Broken Hill. There we found that people showed lead even after leaving the industry ten or twelve years. They had large amounts of lead in their bodies, probably in an insoluble form.

9733. Do they exhibit the lead in their excrement?—Yes.

9734. As long as ten years after leaving the industry?—Yes. We examined the body of a man who was dead, and he had been away from the industry ten years. He still showed lead in a large number of his organs.

That man had no symptoms of lead-poisoning, and had never been treated for it. He died of something quite apart from any connection with lead.

9735. What was his age?—About 50 years.

9736. It is evidence of tolerance from a physiological standpoint?—It is evidence there was lead in his body which produced no sign which we could recognise as lead-poisoning. He was tolerant; yes. From the results one has obtained at Prince Alfred Hospital we would say the amounts of lead taken into the bodies of painters were not exceedingly high. That, I understand, is borne out from the clinical side. Cases with the nervous type of the disease are uncommon.

9737. Were they frequent at Broken Hill, the nervous cases?—No, they were most uncommon, practically absent.

9738. So experience both in the hospitals and the clinical study you made of men at work forced you to the conclusion that the nervous incidence of lead-poisoning was rare?—Very rare; I cannot carry the figures in my head, but I do not think we saw ten nervous cases altogether in the whole 7,000 we have examined.

9739. MR. MANNING: So much for your experience at Prince Alfred Hospital. Then you go on to the difficulty of diagnosis?—Yes. There is considerable difficulty in diagnosing lead-poisoning. Variable standards are accepted by different authorities, and that makes for some difficulty in dealing with figures, and also makes a difficulty in deciding what is meant by "poisoning by lead." From the medical point of view the various forms of illness which I have already classified for you represent what we call poisoning by lead. Other people have accepted the mere fact of the entry of lead into the body as definitely establishing poisoning by lead. But our experience at Broken Hill leads us to feel doubtful of the accuracy of such an opinion. We have seen persons who have obviously been ingesting lead into their bodies for thirty years, and do not show, as far as we can detect, the slightest sign of ill-health. If they went to a life insurance company they would pass as absolutely first-class lives.

9740. DEPUTY-PRESIDENT: Would those men exhibit any pigmentation of the gums?—No. The blue line is absent among men at Broken Hill, taken as a big class. That is, it did not occur very often.

9741. That is, it is wholly unreliable as an indication of lead-poisoning?—Yes, absolutely unreliable.

9742. Is it likely to be reliable elsewhere, then?—Of course, when you see the proper blue line it is usually safe to say that a person is taking in lead. The absence of it is worth nothing, because a person may still be taking in lead. It is usual if you see a person with a proper blue line, and you do not mistake that line for anything else, to say that person is taking in lead.

9743. MR. MANNING: That is the ultimate utility?—Yes.

9744. DEPUTY-PRESIDENT: It would only be evidence of absorption, and not evidence of poisoning?—That is so.

9745. MR. MANNING: You have dealt with the difficulties of diagnosis, and you have considered the statistics Mr. Sawkins supplied the Board with?—Yes.

9746. And have you discussed those statistics with him?—Yes.

9747. You had every facility given you by Mr. Sawkins?—Yes; every courtesy has been extended by Mr. Sawkins to me to get to understand, as far as I could, those figures.

9748. And you have come, particularly in view of those figures, to deal with Bright's disease?—Yes.

9749. Does the evidence that you have come across indicate Bright's disease may be due to lead?—Yes. After going to Broken Hill I have no doubt at all that chronic Bright's disease may be caused by lead.

9750. That brings you, does it, to deal with Bright's disease, and show its true nature and incidence?—Yes.

9751. You might give the Board your opinion as to the nature of that incidence?—Chronic Bright's disease as caused by lead as industrial disease, as a disease of very slow on-set. Experimentally, a form of Bright's disease can be caused in animals actually in the space of a month or so, but in the case of man that does not happen. The first lot of figures I would like to take has reference to Broken Hill. It covers a large number of persons. There is, firstly, the group of figures I mentioned to the Board before, which shows that the proportion affected increases greatly with the time of exposure to lead. Taking the 474 persons who showed symptoms which might be due to lead, of those persons 361 showed symptoms which fall into the arterio-renal group. In the case of the other 113 persons the symptoms had nothing whatever to do with the kidney. I divided those persons up into groups; firstly, persons who had increased blood pressure, cardiac changes and albuminuria. Those are the persons who have undoubted Bright's disease; they have the three typical groups of symptoms. Sixty-one persons at Broken Hill out of the 3,968, showed these symptoms—an association of those three. The number was so small we did not attempt to divide them up into age groups or periods of occupation. There were only sixty-one altogether. There were twenty-seven persons with high blood pressure and albuminuria, in whom the cardiac changes were absent, I think it is quite a fair inference to say those persons also were undoubtedly the subject of chronic Bright's disease. There were persons with high blood pressure and cardiac changes. These persons may, some of them, be in the very early stages of Bright's disease. Some of them were undoubtedly not cases of Bright's disease at all. We could tell that. Taken as a whole, I would say they were not cases to be recognised as cases of chronic Bright's disease. That is, at the time when we examined them, we could not diagnose them—there were ninety of them. In addition there are eighty-nine cases with high blood pressure only, nothing else. A few of these may become cases of chronic Bright's disease, but taken as a group, of course, they are not cases of that disease. There are also ninety-four cases with albuminuria. A few of these may become cases of Bright's disease, say 1 or 2 per cent., but, taken as a group, they are probably not. I have divided them up in that way as showing the distribution, and also to give you some idea of what proportion out of these possible lead-poisoning cases may be possibly chronic Bright's disease due to lead. The total number of cases of chronic Bright's disease out of the 3,968 was eighty-eight.

9752. DEPUTY-PRESIDENT: Is arterio-sclerosis a symptom of Bright's disease?—Yes.

9753. But not only a symptom of Bright's disease?—No, it may occur in persons who do not develop kidney disease.

9754. Is it the most important of the symptoms of Bright's disease?—No. The kidney change is probably the most important.

9755. That is, the inflammation of the kidney known as nephritis?—Yes. We regard Bright's disease as essentially a kidney disease, while arterio-sclerosis is essentially a circulatory disease.

9756. But the nephritis is not a secondary development. That is, it is not in turn caused by arterio-sclerosis?—No. I would like to point out that these eighty-eight cases of chronic Bright's disease are not essentially all due to lead, even at Broken Hill. They represent the total number of cases of nephritis.

9757. Is anything known of the other factors of causation? Can the medical profession ascribe to certain things the occurrence of Bright's disease?—Yes.

9758. Other than lead?—Yes.

9759. Has it a large range of factors, then?—Yes.

9760. More than we can afford to handle at the present time, in comparison with lead as a factor?—It includes very big ones such as alcohol, and would cover a very big range of persons. We have poisons like alcohol and others which cause this disease; then we have the acute infectious fevers which not uncommonly give rise to Bright's disease; then there is syphilis, another fairly common cause of Bright's disease. These, I take it, are the main groups. There are quite a number of other small causes, such as gout, and so forth.

9761. Could you distinguish at Broken Hill between those causes?—No.

9762. So where you found nephritis and evidences of lead in the body, you could not conclude definitely that the nephritis was due to the lead?—I think where we found those associated we rather thought that lead was the cause. We did not say that where a person had only nephritis, it was due to lead. What we did was to exclude the persons in whom nephritis was not due to lead and look for how many—

9763. Could you distinguish between the effects of lead and alcohol in a nephritic patient?—Not in a person who had lead. If a person had nephritis and had a history of alcohol but no lead we were able to say that the nephritis was not due to lead.

9764. MR. MANNING: What is your next point?—I would like to point out the distribution of deaths amongst painters in a table prepared by the Government Statistician of New South Wales. Taking these deaths, we notice for the deaths from nephritis, that they occur after 35 years of age, after a long period of exposure. From 35 to 44 years of age there were 11 deaths; from 45 to 54 years, 18 deaths; from 55 to 64 years, 17 deaths; over 65 years, 16 deaths. I think that undoubtedly some of the chronic nephritis is due to lead.

9765. MR. MANNING: Which of the exhibits are you referring to?—The first group, showing the causes of death, years 1909 to 1913 and 1920, chronic Bright's disease. From 35 to 44 years there were 11 deaths.

9766. You say that probably lead accounts for some of those deaths you have stated?—Yes.

9767. But what percentage you are unable to say?—No, I cannot say what amount. While I have no doubt at all that lead accounts for some, I also think not all the extra amount of nephritis which we find amongst painters is due to lead. In the first place we find that the deaths from chronic nephritis amongst the deaths of persons of all occupations is about 55 per thousand deaths. That has been shown in Mr. Sawkins' evidence. That represents an amount of chronic nephritis due to alcohol, gout, infectious diseases, and so forth.

9768. DEPUTY-PRESIDENT: That would leave 97 per thousand the excess attributable?—I think it is 152 amongst painters.

9769. MR. MANNING: It is 152 per thousand amongst painters?—Yes, 152. Even the excess found due to nephritis amongst painters is not due to chronic nephritis caused by lead, because painters are exposed to another irritant, turpentine. This is an even more powerful irritant to the kidney than lead. It is only within comparatively recent years that it has been recognised that some of the effects seen in painters and formerly attributed to lead, are due to turpentine. When we were at Broken Hill we had one or two very interesting experiences in this respect. Lead causes a destruction of blood corpuscles and one of the signs that can be seen with

a microscope in the blood of persons who were supposed to be exposed to lead is a change in the blood corpuscles basophile degeneration. It was supposed that this was an absolutely certain sign of poisoning by lead. When we went to Broken Hill we examined bloods, and in several hundred persons we did not find a single example of this. Despite the fact we had absolute evidence that some of these persons were taking in lead and had actual symptoms of lead-poisoning, we found no signs of basophile degeneration. On this question, workers in England have also noted that the basophile degeneration is not characteristic of lead, but is probably due to turpentine. Basophile degeneration of red cells is not uncommon in persons we used to take to be poisoned by lead in Prince Alfred Hospital; but after my experience at Broken Hill I feel pretty certain that has nothing to do with lead at all. The next point is in respect to anæmia. There seems to be no relative increase in the number of persons who are anæmic at Broken Hill. They show a certain amount of pallor, some of them, but the degree of diminution in the colouring matter of blood was relatively small. That appears to be evidence that some of the anæmia seen in painters is not due to lead, but that painters are exposed to something else over and above lead which gives rise to anæmia. I have no personal experience on this next point at all, but one of the great authorities upon this matter, Goadby, holds that the colic supposed to have been characteristic of lead can also be caused by turpentine. However, as I say, I have no first-hand knowledge on that point. I only know it as a fact that appears in the literature.

9770. DEPUTY-PRESIDENT: Is turpentine used in the Pharmacopæia?—Yes.

9771. For what purpose?—Most frequently, I suppose, to get rid of worms. It was also at one time used for hemorrhage from the bowels, but I think in recent years the use of it has rather diminished, because there is always the danger of getting acute nephritis from it. It is also sometimes used by quacks in the treatment of kidney disease, to increase the quantity of urine, which is very dangerous to do. Most of the cases we see of nephritis, and see in hospitals which are caused by these medicines, are due to that drug.

9772. These people give themselves doses of it on the advice of irregular practitioners?—Yes. I do not think the general public know it, but these people know it, and they put it into the medicines.

9773. Is colic one of the recognised risks indicated in the Pharmacopæia?—Yes, a well-recognised risk.

9774. Mr. MANNING: Then you pass away from the subject of turpentine?—Yes, and deal with the question of tuberculosis in painters, which, in Mr. Sawkins' figures, seems to account for the increased death-rate.

9775. DEPUTY-PRESIDENT: Before leaving the other subject, has any definite study been made of the effects of small doses of turpentine continuously administered?—Yes; Goadby has been working on that within the last few years.

9776. I mean, in addition to his experiments on cats, has his work in small doses of turpentine in the human body been examined?—Yes, but I cannot tell you what it is. Long before this question arose we were aware through the text-books that turpentine not only gave rise to acute, but also to chronic kidney change; but just who did that work, and where it was done I cannot say. I only know the fact.

9777. Would turpentine have any effect upon the lungs?—No specific effect upon the lungs. It is an antiseptic body, and in that sense acts as an irritant to the lungs.

9778. It would act as an irritant if breathed in in small particles?—Well, if you took a fair quantity of it. It is very freely used as a liniment on the surface of the body because it is irritating. It irritates most things.

9779. Would it pass into the blood in the same way as lead would, through the alimentary canal or lungs?—It goes straight through into the lungs in the course of a few seconds. It differs entirely from lead-dust, which probably takes days, and if insoluble, weeks, before getting into the lungs. You could get acute poisoning from turpentine.

9780. And it would be carried into the blood, and would act as an irritant poison to the kidneys?—Yes.

9781. MR. MANNING: You say the study of Mr. Sawkins' figures brings you to deal next with the subject of tuberculosis?—Yes. Tuberculosis is caused by infection by a bacillus and there can be no direct relationship between tuberculosis and lead. Lead-poisoning cannot in any way produce tuberculosis. The question, however, arises as to whether persons who are poisoned with lead are increasingly susceptible to tubercle. At Broken Hill we had a population which was, I think, useful to deal with in this question. It was a population markedly exposed to tuberculosis; it had a very high morbidity rate of tuberculosis and was also markedly exposed to lead. I would like to turn to these figures of the groups which we had before, taking the cases which had some possible symptoms of poisoning with lead. We found there were sixty-one persons who had taken in lead and were susceptible to lead to the extent that they had increased blood pressure, cardiac changes, and albuminuria. Of those sixty-one none had tuberculosis. Of the next group, with high blood pressure and albuminuria, twenty-seven, none had tuberculosis. Of the ninety persons with high blood pressure and cardiac changes, nine had tuberculosis. Of the next group, with high blood pressure only, of the eighty-nine, there were none with tuberculosis. Of the cases with albuminuria only, ninety-four, there were none with tubercle. In other words, out of 361 persons who may be assumed to have some possible symptom of poisoning with lead, nine only were cases of tuberculosis; and of the eighty-eight persons who had the most marked sign of any affection with lead, none at all had tubercle. As a matter of fact, it is an observation Goadby has noted once or twice, that in some cases where people are susceptible to both lead and tubercle, you do not find any association. It appears as if people who were poisoned with lead became resistant to tubercle. Of course there are other places in which that does not appear to hold.

9782. DEPUTY-PRESIDENT: Do you take 361 as the group of persons showing symptoms of lead-poisoning, or 474?—There were none in the 113. I did not analyse these so well as the others. I would like to point out in regard to Broken Hill that there is less tuberculosis there than in other metalliferous mining centres. That is, the association with lead at Broken Hill has certainly not increased the morbidity of tuberculosis amongst the miners. There is a higher incidence of tuberculosis at Bendigo, where there is no lead, and at Kalgoorlie, where there is no lead. Again I would like to point out that the liability to tuberculosis amongst painters is not really so very high. As soon as we get a special risk from tuberculosis in an industry the mortality is altogether greater than those seen amongst the painters. Thus, for example, amongst miners—as I think was shown in the statistical study by this Board—it was found the death rate from pulmonary tuberculosis alone was equal to the whole death rate amongst painters. It was 12·7 per 1,000 living, while the total mortality among painters was 12·9 per 1,000 living. That figure of 120, there, is not very dissimilar from the figure for tuberculosis amongst persons in the industrial class. It is about that type of figure. It seems to me that painters are exposed to some risk in their occupation, probably something in the way they associate together, because tubercle is an infective disease, whereby you find more tubercle than amongst the average population. But I do not think there is much more tubercle than amongst the industrial class, who work in

towns. You have to recollect the average figure, 90·4 (see Ex. 15), includes a very large group of primary producers who are, I may say, taken relatively, free from tubercle, and that tends to bring the average very much down. Painters, on the other hand, are persons who have to work inside a good deal, and who probably get more opportunities of associating together; and that, undoubtedly, raises the morbidity from tubercle.

9783. Mr. MANNING: Before you deal with the methods of prevention of the effects of lead, you go on to deal with the medical evidence. That is, what you have stated, due to occupation rather than any special risk attaching to lead?—Yes.

9784. Have you discussed this matter with Mr. Sawkins, on his figure?—Yes.

9785. With regard to the crude death-rate, you say it is not permissible to compare these rates—to judge of the relative susceptibility to fatal illnesses?—Yes. On Mr. Sawkins' figures the death rate amongst painters in the Commonwealth for the year 1909 to 1915, was 12·9 per 1,000 living painters, taken for the census of 1911. The death-rate of all males, excluding independent and indefinite, is 12·0 per 1,000 of persons living in those occupations. These are crude death-rates, and it is not permissible to compare them together for the purpose of judging of the relative susceptibility to fatal illnesses. If you do compare them together you are likely to be mistaken in your conclusions.

9786. You adopt Mr. Sawkins' own criticism of those figures in dealing with them?—Yes.

9787. You are not at issue in any sense, but merely assent to the criticism?—I hold the same opinion as Mr. Sawkins—that you cannot compare those together.

9788. You go on to say they may be compared as Mr. Sawkins has compared them?—Yes, in various ways. Mr. Sawkins has compared them in two ways. First he determined the index of mortality of painters per 1,000 living, and he brought this out as 15·7. This on the assumption that death-rates of painters for each age group are applied to population distributed to the same proportion in age groups as those of all occupations.

9789. Is that 15·7 or 15·8?—It is really 15·7 in Mr. Sawkins' figures. That is a much fairer figure to compare with the 12·0, than the 12·9 given by the crude death-rate, and that is the figure which should be compared in forming an idea of the relative amount of mortality amongst painters and those of other occupations. Instead of taking the 12·9, the crude death-rate, we should take the 15·7, the index of mortality. The other method Mr. Sawkins used was to determine the expectation of life. That, for painters at twenty years was 42 years, and that of all occupations at twenty years, was 45 years. That is another way in which you can compare those figures together. In order to understand the meaning of these figures, they have to be compared, as Mr. Sawkins has done, with the rates in various groups of occupations which make up the whole range of all occupations except independent and indefinite. The reason for that is, if you take a very large number of persons and take an average figure for the whole lot of them, it represents the middle or the mean figure, and lying inside the whole group of persons you have some, as we are dealing here with the death-rate, of higher death-rate and some of lower death-rate. In order to understand any other figure you are going to compare with that it is well to know what is the range of variation in respect of that group. So taking that group of "all occupations" with a death-rate of 12·0, it is well to know what are the limits of the death-rates, the highest and the lowest. They range, as Mr. Sawkins has shown there, from 9·8 deaths per 1,000 living amongst the commercial classes, to 15·3 deaths per 1,000 living amongst

those of the combined group of transport workers and the industrial class. I accept what Mr. Sawkins has done, to combine these two groups together. The industrial class had a slightly higher mortality—I think 16· something—and the transport workers had a slightly lower mortality, but he says there are good grounds for combining them, and I accept that. I regard that range as spreading from 9·8 to 15·3. Looking at the figures for painters, 15·7, I can see there is no excessive or extreme death-rate amongst painters as compared with the industrial class and transport workers generally. Now, coming to the expectation of life, from the figures supplied by Mr. Knibbs from time to time we know that the expectation of life in Australia is increasing about two years a decade, approximately—perhaps not quite so fast as that, but approximately so. Looking at it, we find painters appear to be a little more than a decade behind the average of all occupations, but I would like to point out, in regard to the expectation of life, just what has been done by Mr. Sawkins in regard to the crude death-rate. The expectation of life for all occupations is 45, but there is a higher expectation of life amongst the commercial classes and the primary producers, and a lower expectation of life amongst the industrial classes and the transport workers. Painters have an expectation of life not dissimilar from that of those classes.

9790. DEPUTY-PRESIDENT: What is the figure in each case?—15·3 and 15·7. It is not really dissimilar, the expectations of life—it would only be a decimal point or so.

9791. MR. MANNING: The industrial classes were 16, and Mr. Sawkins calculated that up and brought it down to 15·3.

9792. WITNESS: He did not calculate that.

9793. MR. MANNING: No; you are quite right, that was the death-rate.

9794. WITNESS: The mortality from lead-poisoning, which is always put into these tables, is an absolutely insignificant mortality. If you want to really get significant figures for mortality you expect them to be of the order of 2, 3, 5, 10, and 15 per 1,000 living. The mortality figures for lead-poisoning is about ·2, I think—1 in 4,000 it was calculated out at. I see no reason at all in the value of that figure for prohibition; that is, there is no significant mortality, taking painters as a whole, without considering whether the whole of their mortality is due to lead; but taking their mortality as a whole, it is not dissimilar from that of the industrial classes group. As I say, the special figure for lead-poisoning is really, from the point of view of the cause of death, insignificant. Compared with the bulk of diseases with which one has to deal medically, these death rates of killing one in 4,000 are nothing. With regard to the mortality from tuberculosis, chronic Bright's disease, disease of the nervous system, and accidents, I think you have an excess of deaths table somewhere compiled by Mr. Sawkins. The mortality from those causes accounts, in my opinion, for the place of painters among the industrial class, and also accounts for the fact that the death-rate amongst painters is higher than the average death-rate of all occupied males. That is, if we want to account for the reason why painters are among the industrial class with a death-rate of about 15·7, instead of among all occupied persons with a death-rate of 12·0, that reason lies in the fact that there is a mortality from tubercle, from chronic Bright's disease, diseases of the nervous system, and accident. I do not think that the prohibition of the use of white-lead would remove that excess of mortality. Mr. Sawkins worked out an index of mortality in regard to tubercle; he prepared a statement showing the index of mortality from different diseases, and he showed that the mortality from tubercle among painters was practically a figure of the order of two—the index of mortality—as compared with one from all occupations from tubercle. I think that would probably remain; I

have no doubt it would remain. I mean, the lead has nothing to do with that.

9795. DEPUTY-PRESIDENT: In which of Mr. Sawkins' exhibits do you find that?—I think it was one of the special exhibits he put in—the last table. He has a table showing the index of mortality, and he added two extra sheets the last time he gave evidence. This is a better figure to compare really. It shows the index of mortality amongst painters from various causes of death, and we see there that, instead of taking the other figures, the proper way to compare them is by supposing the death-rate occurred in populations similarly distributed—the death-rate from tubercle would be two with painters as compared with one for all occupations. Chronic nephritis would still cause an excess of deaths, and so would diseases of the nervous system. That would be partly due to the effect of turpentine. We cannot express that in figures. Accidents, of course, would still cause the excess of deaths amongst painters, whatever it is, in the same way. Finally, from the figures I would like to point out that there is no increase in fatality amongst painters; if anything, the evidence we have is that the rate is falling at the present time. For example, in 1920 you have eighty-six deaths in New South Wales. I think it has been established by evidence that there are about 7,000 painters in New South Wales, and that would give you a death rate of about 12·2.

9796. Mr. CONNINGTON: I do not think there is any evidence about there being 7,000 painters.

9797. Mr. MANNING: It has been spoken of.

9798. WITNESS: Well, I assumed that there were about 7,000.

9799. DEPUTY-PRESIDENT: We have the census of ten years ago before us.

9800. Mr. MANNING: It would not be, perhaps, an unjustifiable assumption for the purposes of calculation to assume that there were 7,000 painters in New South Wales.

9801. DEPUTY-PRESIDENT: I have no objection to the evidence being put in that hypothetical manner. If there is any means of determining how many painters there are at this particular date the Board will be glad to have its attention drawn to that means. We have made an attempt to obtain from Mr. Knibbs the result of the last census, but we have not succeeded much.

9802. Mr. MANNING: Mr. Sawkins says that it is reasonable to assume that the painters have increased in the same ratio as the rest of the population. On that basis you could take the number of painters as being something more than 7,000 or, at any rate, not less than 7,000.

9803. DEPUTY-PRESIDENT: You will have to deal with those inferences when you are summing up the effect of the evidence for our benefit.

9804. Mr. CONNINGTON: I had occasion to get in touch with the State Statistician with regard to the figures, and he informed me that it would be unwise, and possibly misleading, to work upon the figures shown in the census of 1911.

9805. Mr. MANNING: It would only be misleading in the sense that they would be smaller than the present figures.

9806. Mr. CONNINGTON: They may be larger. It depends on how you view the figures. I mean, they must necessarily be larger, but the question is, how much larger?

9807. DEPUTY-PRESIDENT: I am afraid that the report that he has expressed an opinion outside of this inquiry will not influence our minds very greatly. I mean, on what reason does he base his opinion?

9808. Mr. CONNINGTON: I am merely stating the fact.

9809. Mr. MANNING : And I am merely stating the evidence Mr. Sawkins gave—that he took the 1911 census, and he said that painters would probably have increased in the same ratio as the rest of the population.

9810. Mr. CONNINGTON : I am not disputing the evidence. I am merely stating the facts, that apart from that, it is open to grave doubt as to whether something which existed in 1911 exists to-day. It might be the basis for argument later.

9811. DEPUTY-PRESIDENT : Leave it for argument, then.

9812. Mr. MANNING : I will take the risk.

9813. You are dealing with that on the basis of 7,000?—Yes, and that made 12·2.

9814. We are dealing now with Exhibits 22 and 23 ; you said that that rate was probably falling slightly?—Yes.

9815. The only other matter I will ask you to deal with is with regard to any methods you suggest for preventing whatever illness there is amongst the painters, due to white-lead—

9816. DEPUTY-PRESIDENT : Before you come on to that, what do you say with regard to the attack-rate? You say that the death-rate from lead-poisoning is insignificant in its general proportions amongst painters?—Yes.

9817. What would you say with regard to the relative attack-rate?—As far as our experience at Prince Alfred goes, which is the only experience I have, it is very low ; it seems surprisingly low.

9818. That is the death-rate is high and the attack-rate is low relatively?—No. A death-rate of 1 in 4,000 is so small that one cannot orientate it. I mean, it is a rarity. Lead-poisoning, in our experience in Prince Alfred Hospital, has always been a very rare disease. Whenever we came to count up the cases we discovered that they were actually, from a figure-point of view, very uncommon. I think that in about twelve years Dr. Smith found less than forty cases—thirty-six, I think.

9819. Mr. MANNING : His figures showed that the attack rate was practically commensurate with the death-rate. That was the inference I drew from his figures, and that was the importance of that, too, to my mind—that the attack-rate was practically the same as the death-rate.

9820. WITNESS : I thought there were twenty-two deaths. I cannot remember these things definitely now, from memory.

9821. Mr. MANNING : That is the only data you have to go on?—Yes ; that it is not a common disease.

9822. Mr. CONNINGTON : Not through the hospital?—Not through hospitals.

9823. But there are thousands of doctors, you know, and they find much to do?—Quite so. I mean, taking it as you do other things which occur fairly generally amongst a population, we see a fair amount of sickness in Prince Alfred Hospital.

9824. It is generally severe when they go to the hospital?—Yes, it is severe. I could not hazard the slightest opinion if you take painters, as to how many were affected by lead. Even with the experience at Broken Hill it is impossible in our present state of knowledge to get an idea without actually examining them. I mean so little work of that kind has been done that we cannot associate mortality and morbidity figures together.

9825. Mr. MANNING : Will you go on to suggest any preventive measures?—I think that as painters undoubtedly run some risk from lead absorption we should consider whether the introduction of lead can be prevented. The absorption of lead from the digestive tract is very readily prevented. It is prevented by ordinary cleanliness ; by washing the hands, by avoiding the handling of pipes, and so on, while lead is on the hands ; by the wearing of overalls and things of that kind ; but that is relatively unimportant, because

as far as our knowledge goes no very considerable amount of lead is introduced in this way. The practical question is the prevention of dust. In my opinion there should be some restriction on operations which produce dust. At Broken Hill we made quite a number of experiments as to the amount of dust suspended in the air, and we found that currents of 20 feet and over per minute are ample to remove dust. Provided you have a moving current of 20 feet per minute that place becomes, for practical purposes, a place free from dust. That is, we only found evidence of the accumulation of dust when the air current was moving at a less rate than that.

9826. And that was at Broken Hill, where the dust was presumably very much greater?—That I do not know; I have no knowledge of how much dust you produce in painting. It does not make much difference what the quantity of dust is provided you move at that rate of 20 feet per minute; that is for practical purposes.

9827. That is a very moderate draught?—That is quite a moderate draught. I would like you to clearly understand that that is a velocity; it is not the removal of 20 cubic feet per minute, but it is a velocity.

9828. DEPUTY-PRESIDENT: Might not a man be continuously in such an air current; if he moved as slowly as the current of air was moving he might be exposed from the beginning of a shift to the end of it?—Do you mean that he walks along with it?

9829. Yes. If he walked along with it?—If you could imagine a man walking with it and working in that way.

9830. Or walked along with it; supposing a man were shovelling ore, for instance?—We found at Broken Hill that a man shovelling, with a current flowing over him at 20 feet per minute, was free from dust.

9831. Then the man would need to be stationary?—That is, shovelling at one spot, and the air going over him. Even if we had an explosive condition, which produces an enormous amount of dust—speaking of a figure of the order of say 3,000 or 4,000—I am sure that within a space of something like ten minutes that place is free of dust, and there is not a sign of it left; it is all carried out, removed, and washed away. If we take various dust-producing operations, such as the working of a drill, or anything like that, that place becomes free from dust. The man was safe, provided we ran 20 feet per minute past him.

9832. Do you mean to say that the dust created then by the pressure of drilling would be kept away from the man's face by a draught moving at the rate of 20 feet per minute?—Practically, yes; there would be no accumulation in the air. We put the collecting apparatus up at the level of the man's head, so many feet away, moving that distance away from the actual drill. In most places we put the collecting place at a level with a man's face, 6 feet away from the spot where the drilling was taking place, so that that apparatus would be rather nearer to the drill than the man who was actually working on the drill, and we collected practically nothing.

9833. That is, the dust would not resist the wall of air that was proceeding from the man to the working place?—That is so.

9834. Mr. COOPER: Do you think that would carry the dust away from a painter who was working within 2 feet of the wall?—It would mean that there was no measureable amount of dust accumulating. For example, if you had a room like this, and men were rubbing down, and you had a current of 20 feet per minute in here, and you started to collect dust, after you had collected for several hours you would have no weighable lead. On the other hand, if you stopped that ventilation and started to collect here, you would have a very definite quantity.

9835. DEPUTY-PRESIDENT: Do you suggest it would be possible to apply a draft of that kind in a room by artificial means?—I give you that figure

because it is a low figure, and I think most apparatus producing a forced draught would easily produce an air movement at that rate. I wanted to establish the fact that that would be highly beneficial.

9836. Mr. MANNING: That is what you consider to be a draught sufficient for the purpose?—We found, after dealing with all our working places at Broken Hill, that we deflected the dust with that figure. When we started we did not know what rate would make the difference between a place where dust came and a place where it did not come. We were finally led by our experiments to conclude that wherever there was a moving rate—that is a rate which you cannot really measure with an anemometer; to get that movement we burnt gunpowder and saw that carried along and measured its rate. At that rate we found the distinction between dusty and non-dusty places. Any spot where there was no air movement of 20 feet per minute or more was dusty, and fell in another group. That made a difference between places where it was really idle to try and collect dust; we never got any.

9837. Mr. MANNING: What other methods do you suggest?—Then there are some general regulations which seem to me of importance. The first is that cases of poisoning by lead should be made notifiable, so that the health authorities should know whenever a case of lead-poisoning occurs. Secondly, I think there should be a definite provision that all persons who are poisoned by lead should receive compensation. I understand there is already a provision in the Workmen's Compensation Act. The third thing that I think would make a very great difference is power to withdraw persons from the industry and exclude them from it. Personally my opinion is that all persons who have been poisoned with lead at any time should be withdrawn from the industry and excluded from it.

9838. Mr. CONNINGTON: If they are leaded once they should be debarred for ever afterwards?—Yes. I would like to point out that there is no permanent damage done by lead to a person who is withdrawn when the first symptoms of poisoning by lead are manifested.

9839. Mr. MANNING: If they are withdrawn early from the industry?—I have taken lead into my body frequently myself, for my purposes in connection with investigation, and have suffered no damage. It passes through you and you suffer no injury. I think that that power to withdraw from the industry, is, from a medical point of view, a provision of very great importance.

9840. DEPUTY-PRESIDENT: Would not the diagnosis have to be certain before any such restriction on freedom should be imposed upon the individual?—Yes, you would have the diagnosis as suffering definitely from lead poisoning, either alimentary, nervous, or nephritic.

9841. Upon whom would you cast the responsibility of such a certainty of diagnosis?—Upon a properly trained medical man. I do not think you could trust the ordinary general medical practitioner to do that.

9842. Are you going to deal with the difficulties of diagnoses more fully?—No, not in detail.

9843. Mr. MANNING: I asked Dr. Smith to deal with that. I do not want to go over the same ground.

9844. DEPUTY-PRESIDENT: No; I think you are perfectly right.

9845. Do we understand that you have heard that evidence and that you agree with it?—I do.

9846. You heard Dr. Smith's evidence on that point?—Yes.

9847. And you agree with it in detail?—Yes.

9848. Mr. MANNING: Dr. Chapman deals with it from a different point of view than Dr. Smith; that is why I put Dr. Smith in first, so that he could go into it fully. Dr. Chapman deals with the scientific aspect of the

question in a particular way. He gives us the benefit of the figures which he has collected himself and the data upon which he worked, and his very interesting study carried out at Broken Hill.

9849. DEPUTY-PRESIDENT: Mere repetition will not make the evidence that has been given more important.

9850. MR. MANNING: No. That is why I took some considerable time to study the matter. I asked these doctors to do it in that way so that there would be no more overlapping than was necessary. That was why I asked Dr. Smith about those figures which were Dr. Chapman's figures. Those figures have been arrived at by a process of collaboration between the two doctors, and they are not hurriedly thrown together; each case has been very carefully dealt with.

9851. That is so, is it not?—At Broken Hill very carefully. Every patient at Broken Hill was given two or three hours' examination by a medical man. Of course, I did not examine them all, nor did Dr. Smith. We had a large staff of medical men. But all the examinations were made by persons who were working together and who worked with us.

9852. DEPUTY-PRESIDENT: And working in accordance with a system designed by you?—Yes. And the diagnoses were all made by the group; that is, only normal cases were allowed to pass without being subjected to consideration by all of us.

9853. MR. MANNING: You say you had a large staff working for you there?—Yes.

9854. How many were there on the staff?—I think when we were working there at first we had eleven medical men up there. This time there are nine.

9855. You might state what the purpose of the investigation was and how you came to be there?—We were appointed a technical commission as a result of a recommendation by the Board of Trade to the Government, that there should be an investigation into the incidence and morbidity of workers in metalliferous mines. We were especially asked to make an examination of 30 per cent. of the persons working in Broken Hill. As a matter of fact, as a result of the examination of the first group of 3,900, we examined all persons who are at present working now at Broken Hill—somewhere about 6,000—and all persons who lived in Broken Hill and who had worked at the mines and who came up for examination. As a matter of fact, we have examined a very considerable proportion of the total number of persons who have been on the pay-sheets of those mines during the past five or six years—a high proportion.

9856. Do you consider, from the examination you made of those individuals, that you have exhausted all possibilities of a thorough investigation of the position there as far as lead is concerned?—We have made as thorough an examination there as it is possible to make in the present state of our knowledge.

9857. DEPUTY-PRESIDENT: And did the occasion present you with a unique opportunity of studying the diseases from which the miners suffer at Broken Hill?—Yes, especially in respect of what they suffer in the way of permanent damage. In the first part of the inquiry they were not working below, and in the last part of the inquiry they had been working, and we had an opportunity of examining them under both sets of conditions.

9858. I mean unique from the point of view of clinical studies of health of groups of employees?—As far as I know, no similar inquiry into the health of those engaged in any occupation has ever been made in Australia, and there are very few investigations made in the whole world which have been made so thoroughly, because we made a complete medical examination of all the persons who came before the Commission. There is one thing I would like to refer to on that last point I made with regard to power to

withdraw from the industry. I would like to emphasise that point, that those persons who are found to be susceptible should be withdrawn from the industry.

9859. Dr. Legge, who is well known to you—the English factory medical man—said in evidence that he was giving upon the inquiry into the incidence of plumbism upon house-painters in England, that there is no definition of what constitutes lead-poisoning, and every medical practitioner has to form his own judgment of what lead-poisoning is. Is that a correct statement of the position from your point of view?—I think so.

9860. Is it then advisable that medical opinion and practice in such a connection should be standardised?—I think it is very advisable.

9861. Is there any means by which some standard in respect of diagnoses and methods of diagnoses should be arrived at?—There is no difficulty in setting a standard. The difficulty is in getting medical men to abide by it.

9862. Would it not be necessary, in order to determine important social questions, such as that referred to the Board, that those who are prepared to conform to the standard should alone be given the authority that will enable the State to determine the incidence and prevalence of plumbism?—Do you mean that there should be some tribunal which should settle these questions.

9863. Yes, some medical tribunal which would settle the doubt which may exist with regard to the occurrence of lead-poisoning?—I think if the State is to follow out some process of compensation, or something of that kind, it is very necessary that there should be some medical board of reference. But you cannot coerce individual medical men to give the diagnosis on particular rules. We as a profession have always held that each man should form his own opinion. Frequently, of course, people who hold rather isolated opinions at one time are found in a few years' time to hold a correct opinion. That does not hold in regard to this question. For example, one man may say that any person who is exposed to lead—and this is a position which has often been put in print—and shows any symptoms of disease is lead-poisoned. There are persons at Broken Hill who act on that principle. If any man comes who is run down and who is exposed to lead, these people will give him a certificate of lead-poisoning.

9864. That method may lead to very mischievous results, may it not?—It may do so. At any rate, the commission at Broken Hill did not assume that every person who had lost weight was suffering from lead-poisoning.

9865. A doctor, although he may claim to have freedom with regard to the formation of his opinion for the purpose of advising his patient, has no right to claim that his judgment in the matter shall determine rights as between employer and employee upon a question of compensation?—No. All that man would do would be to give a certificate that in his opinion the person is suffering from lead-poisoning. I think it would be a very dangerous proceeding that a man should be withdrawn from the industry as a result of a certificate of any not specially-qualified medical man, or with no further examination. I think that would be a very dubious policy.

9866. Or that lead should be prohibited because of an accumulation of certificates from independent medical men indicating that lead-poisoning had been prevalent?—Yes.

Examined by Mr. CONNINGTON :—

9867. The question of applying that suggestion with regard to the ventilation would be a difficult one in the house-painting industry, would it not?—I think it could be applied inside.

9868. You know how painters work; take small cottages, where perhaps the painting work takes a week; then they work in another quarter?—Of course, it is only where there is dust that you would apply that.

9869. I am assuming that wherever a painter works using lead paint there must be dust, for this reason: that it is admitted that part of his work is the process of rubbing down, and I think it is admitted by all authorities that that is the most dangerous part of a painter's work?—Yes.

9870. Assuming that with all painting work some rubbing-down has to be done, how then could we apply that ventilation suggestion of yours? Have you anything in mind which you suggest, which would be practicable to apply to the work of a painter?—Nothing in particular. I specially thought that in establishments where a considerable amount of painting would be done, that wherever you had rooms specially fitted up for painting—which I have seen in various places—whenever those places are fixed, there should be proper ventilation provided for running the dust off.

9871. In other words, if there were such a thing, an establishment where painting work was carried on within the establishment?—That is wherever you have a closed space for painting, and where you bring things in and paint them, or re-paint them—all those places should be fitted with special means of ventilation.

9872. Proper exhausts for ventilation?—Yes.

9873. You had not in mind the ordinary work?—No, not of outside painting. I think from what I have seen that there can be no accumulation of dust at all in outside painting.

9874. Take an ordinary cottage, inside, how would it be possible to ventilate in the way you suggest?—I do not think it would, except by arranging for through ventilation. I would like the painters educated to the importance of arranging for through ventilation wherever it can be done. I did not think of any mechanical means as applied to a cottage, or anything like that.

9875. But with regard to a shop where painting is done continuously, some mechanical arrangement could be devised which would meet your suggestion and remove the danger of the dust remaining in the air?—Yes, remove it in time.

9876. Dr. Legge, in giving evidence before the Royal Commission in England, suggested something on the same lines. He suggested that exhaust ventilation would be practicable, and he referred to certain work in which ventilators have already been installed. Evidently he had in mind something similar to yourself. With regard to Broken Hill, you were a considerable time examining the workers in the industry?—We are still going on, and finishing it up, but we have practically finished.

9877. With regard to the men who mine the lead, who are in constant danger, if there is danger owing to the place where they are working being filled with dust, and dust floating round all the time, do you suggest any safeguards in connection with their employment?—I have not suggested any, but we are going to. I made a complete examination of one mine from top to bottom, measuring the dust in all types of working places; and we are now engaged in making control investigations in other mines to see if we get the same kind of figures for the same kind of place. We have investigated various means for diminishing dust, but I do not think they are applicable to house painting at all.

9877A. In that case you are going to suggest something which you think will make the mines reasonably safe?—Yes, safer than they are now.

9878. Coming to the men themselves,—do they work the same hours as other workers in the mine?—I think so.

9879. Their shift is continuous from the time they commence until they finish their day's work?—Up to the time of the strike they worked continuously, three shifts there. That is, they never stopped working, and they had three shifts of eight hours. Since the resumption in November, I think they have worked two shifts of seven hours.

9880. You have not recommended any break in the shift?—No. We have aimed at getting rid of the dust, apart from waiting.

9881. Would there be anything in the suggestion of splitting an eight hour shift into two sections of four hours each with a break of two hours between; do you think there would be any advantage to the men themselves if the time was worked in that manner?—Do you mean to say, taking one of those inner rooms, that if you were getting dust you might leave it for two hours. I do not think that would be any advantage, except in this way: if you had a ventilation current it would take nothing like two hours to take that dust out. On the other hand, if you did not get a ventilating current I do not think it would have settled in two hours.

9882. Assume that a person was inhaling dust?—I think it is generally admitted that absence of contact from the dust has a tendency to relieve persons from any ill-effects from which they may be suffering as a result from having inhaled dust. I do not think that the dust in the case of paint which produces harm is the dust as dust. It is the nature of the dust which is important. In occupations in which the dust does do harm, it is of very great importance to diminish the time of exposure.

9883. It is generally admitted that the dust inhaled by painters is more dangerous than that obtaining in the case of mine and other lead-workers?—Yes, because it dissolves, and it is of the nature of a material poison.

9884. And I suppose that is why it is that commissions have devoted themselves, and many learned writers have devoted much of their time, to the question of lead-poisoning amongst painters?—The dust is much more dangerous in mines. It is the dust as dust, the mere particles, that causes the disease. They take a long time to produce harm.

9885. The dust inhaled by painters is more dangerous than any other dust?—Yes.

9886. DEPUTY-PRESIDENT: But why, Mr. Connington?

9887. MR. CONNINGTON: That is what the witness says.

9888. DEPUTY-PRESIDENT: I would like you to ask the witness why. The witness is distinguishing, if I follow him correctly, between the mechanical injury caused by harsh dust and the chemical injury caused by a metallic dust. In order that you yourself may not be misled by the answers given, I would like you to ask the witness this question—whether, if a man is working in free carbonate of lead below ground, he will not suffer just as much from the inhalation of the same amount of carbonate of lead dust as the house-painter.

9889. Assuming that the same amount of dust is inspired by the two workmen, one being a house-painter and the other a miner in carbonate of lead, would you expect to see, with the same degree of susceptibility, any difference in effect?—They would show just the same amount of poisoning by lead. Of course, the miner who is getting the carbonate of lead dust is probably getting other particles of dust in as well, and he is also going to suffer from one of the dust diseases of the chest.

9890. A mechanical injury to his lungs?—Yes; he has a fibrosis or pneumoconiosis. That dust never occurs in paint. We have very definite medical evidence that dust as dust does not cause disease in painters. In the sense that you mean, it is more poisonous than the dust that causes fibrosis, because it will produce acute lead-poisoning in three or four weeks.

9891. I think it will clear the matter up from Mr. Connington's point of view if you will inform us whether, in your opinion, carbonate of lead is not equally poisonous—whether it be taken in by the painter or taken in by the miner?—Just the same.

9892. MR. CONNINGTON: That is how you would classify the rubbing down done by a house painter. Is there not a distinction between the lead which might be floating in the air in a mine, and the lead which would be floating in

the air as a result of the rubbing down by the painter?—Not the carbonate. The carbonate which you get in mines, which they used to get in the upper levels at Broken Hill, and now very occasionally in the lower levels, is very soluble, and is just as poisonous as the lead-dust.

9893. Have you ever analysed the dust which is created as a result of the painter's rubbing down?—No.

9894. Do you subscribe to the suggestion that the lead-poisoning from which a house painter suffers is a more acute form of poisoning than that experienced in the case of other classes of workmen who may be lead-poisoned?—No.

9895. Have you ever diagnosed any great number of lead-poisoning cases amongst painters?—I have seen most of the cases that we have had in Prince Alfred Hospital.

9896. That is very few, is it not?—Well, it is as much as anyone gets in this country. I have also seen the Broken Hill cases, which is probably a great deal more than any other medical man has ever had.

9897. I am merely testing the last statement, which runs this way: of the sixty fatal cases of industrial poison, stated by Dr. Andrews, forty, or two-thirds, have been painters, showing apparently that the form of lead-poisoning from which painters suffer is above the average in severity, for the proportion of painters amongst the fatal cases in New York is higher?—That is not our experience here. Painters have the mild forms of lead-poisoning here. The most acute cases I have seen have been from people who worked in smelting factories where they have been exposed to lead vapours.

9898. If you are confined to Prince Alfred Hospital, you have not had much experience with house painters, have you? I think the return shows very very few. I am merely making it clear that your experience has not been as extensive as you would like it to have been?—No.

9899. We are all agreed, I suppose, that there is a danger of lead-poisoning in the lead industry?—Yes.

9900. And I think I can agree that under the present conditions whilst the rubbing down processes have to be carried out, the risk taken by the operatives is unavoidable?—I think the lead-poisoning is not unavoidable. I think that some of it is preventable.

9901. I subscribe entirely to your view, and thoroughly understand it so far as it would apply to painters working in an establishment where painting work is done. For instance, take a factory where motor cars are painted, or a place where signs are continuously painted, or a place where the electrical signs are being painted: there, the mechanical contrivances can be put. But my question is not directed to cases such as that. Let us leave that and come to the ordinary house painting. How can you, in the case of house painters, prevent the risk that they take in connection with their work, caused by them having to rub down?—I think that they can arrange to get a through draught of air. I think that they should be carefully instructed as to the importance of doing that. They have not got to get an air current of very great speed to remove that dust altogether, and I think that if rubbing down is done under those conditions, with a proper ventilation through the room, you will get every advantage that you get with a mechanical means of ventilation. It will mean this, that if you rub down in a room, with the window shut and the door shut, you have the same risk as there is at present; but if you arrange so that you get a through draught with the doors and windows open—and it is easy to get a current of air which you can feel, and when you feel a draught it is about 40 ft. a minute—such a draught will take that dust out.

9902. DEPUTY-PRESIDENT: That really means this in practice, that in eight or nine cases out of ten under which work is performed by operative painters, there is such a draught playing upon his work?—Yes.

9903. DEPUTY-PRESIDENT: That is a very important statement the witness has made, Mr. Connington.

9904. Mr. CONNINGTON: Yes. It is of value, if the draught can be obtained.

9905: DEPUTY-PRESIDENT: I drew your attention to that, Mr. Connington, because I thought you had not heard what was said. The doctors said that under natural conditions the draught exists.

9906 Mr. CONNINGTON: I did not hear that.

9907. DEPUTY-PRESIDENT: In the great majority of cases the natural conditions provide such a draught.

9908. Mr. CONNINGTON: Take the room of an ordinary cottage: there is one window in a room. You can feel the draught, can you not?—It is quite easy to arrange the ventilation so that we feel the air going through. When you can feel the air moving, the first draught of air you can feel moving is about 40 ft. a minute, so that if you were working under those conditions you would have excellent conditions for removing the dust, and you could say definitely that there was no dust.

9909. However, we have to admit this, that you have to arrange for this draught, otherwise we would never have heard of any talk of danger from lead poisoning if the draught were always there?—That is so.

9910. That is clear that you have to arrange so that this draught will be ever present?—That is, if you do not remove the dust people will be poisoned just as at present.

9911. And the fact that an arrangement will have to be made to get this draught is evidenced by the fact that lead poisoning does exist, and therefore there cannot be that current at present—

9912. DEPUTY-PRESIDENT: The doctor has already told us that only one painter in 4,000 incurs the risk per annum.

9913. Mr. CONNINGTON: Where did you get those figures from?—I got them from the statistics.

9914. I will deal with the statistics on a different basis to a doctor's evidence. As a doctor I am prepared to accept all the statements you make, but when you come to statistics, that is another matter. Are you aware that since 1919 there have passed through the hands of Dr. Nash, as certifying surgeon under the Act, something like twenty cases of lead-poisoning?—Yes.

9915. There are probably some other cases (we know of one which we have here) which the doctor has also certified to as being cases of lead-poisoning?—I just knew in a general way that he had dealt with about twenty cases of lead-poisoning as referee or certifying surgeon.

9916. Assuming that in two years alone, in the metropolitan area, twenty persons have, as the result of their employment, apart from the fact that they suffered severe illness, been compelled to give up the occupation that they followed for a great number of years, or would be compelled to do so if your suggestion were put into effect—I am not disapproving of it; I agree with it from a humanitarian point of view. Say there were only those twenty cases (and those are cases of men who apparently run from between 30 to 50 years of age) those men would be condemned to industrial deaths and would have to change their mode of obtaining a livelihood?—Yes.

9917. That is clear?—Yes.

9918. I am in full agreement from humanitarian reasons that it would be better if they were put into another occupation. When we come to men who are found to be susceptible to lead poisoning, the logical suggestion would, I presume, be the same as in the case of men who are found to be lead-poisoned?—Yes; of course there is much less hardship with them, because you are taking them out at the beginning of their occupation. When

you introduce this straight away there must be hardship. These persons have been poisoned for years.

9919. As long as it is followed up in another way by the State I quite agree that this should be done. The probabilities are that a person who is susceptible would become leaded later if he is exposed to it?—Yes.

9920. And you are suggesting the same in his case as in the case of a man who is found to be leaded?—I suggest he should be excluded.

9921. Seeing the danger and the drastic means suggested to cope with it and to prevent people from suffering or being put in the way of danger, would you suggest that some periodical examination of the persons engaged in the trade should be made?—I do not think it is necessary to examine periodically all the persons in a trade, but I do think that there should be examinations of persons who enter into a trade. I think that within three or six months after any person starts to be a painter he should be subjected to a medical examination. That would detect the susceptibility of the persons.

9922. DEPUTY-PRESIDENT: I take it from what you have just said that you think it is a social mischief for a boy, for instance, who is suffering from disease that has left him with weak kidneys, to enter the painting trade; for instance, a boy who has been left so by, say, scarlet fever?—Very unwise.

9923. It is more than unwise, it is a social mischief that he should be subjected to the effect of lead?—Yes, it is to him; it is an undoubted mischief to him.

9924. MR. CONNINGTON: What would happen after six months if he successfully passes through that examination;—would you leave him free until he became leaded or showed symptoms of lead-poisoning?—I think if you made it compulsory that any person who showed symptoms of suffering from the effects of lead should be notified, you will have all the advantages. In other words, if you have an examination of every person, say six months after he has entered the industry, it would enable one to say who was susceptible. Then, if a person consulted a medical man and there was any reason to suppose that he had lead colic or anything due to lead, and that were made notifiable I think that would give you everything that was necessary.

9925. In other words, whenever any such symptoms were found in a painter it should be made compulsory to have that notified?—Yes.

9926. And then the real examination would take place on those doctor's reports?—Yes, he could then be examined more fully in respect of questions of withdrawal from the industry or compensation, or anything of that kind.

9927. You would have a definite subject to operate upon instead of going round fishing for the information?—Yes.

9928. DEPUTY-PRESIDENT: And you would have a possible check on the diagnosis?

9929. MR. CONNINGTON: Yes. If I went to my doctor and he said that I had colic, and he reported me, I would have to attend before another doctor who would decide whether I was fit for a certificate such as that suggested?—I think that would be sufficient, without having any periodical examination of all painters.

9930. That would be the examination, but done in the best way and the cheapest way?—Well, the cheapest. It is very expensive to examine a large body of men in an industry.

9931. With regard to the men in the factories, hot and cold baths are now provided, are they not?—Yes.

9932. And there is a medical inspection weekly or fortnightly?—This is in the white-lead factories.

9933. Yes. And the visiting doctor prescribes when he thinks a prescription is necessary?—Yes.

9934. Can you suggest anything on the same lines with regard to house painters;—you see, the workers in lead are protected in some way or other; their health conditions are supervised regularly, and means are found for them to enable them to observe the strictest cleanliness; overalls are, I think, provided in the lead factory. Doctors are there to provide whatever medicine is required—a laxative or purgative as the case may be. All that tends to make work in the factory or in the mine much safer than it would be otherwise, I suppose?—I understand that taking white-lead factories they cope absolutely with the evil.

9935. That is so; that makes living or working in those factories much safer than would otherwise be the case?—Absolutely safe, I understand. I understand they have never had any case in the factories in Australia.

9936. I think they have had one. However, it makes it much safer?—Yes.

9937. The fact that it is done clearly shows that they realise the danger there would be if they did not exercise this supervision?—Yes.

9938. Take the house painter: is there any precaution you can suggest that might afford him something like the protection that the factory worker gets?—I think you can only educate him. I do not see how you can make it compulsory. It may be possible to lay down regulations which state how he shall wash his hands and that he must not handle a cigarette or pipe or put it in his mouth, and the wearing of overalls and so forth. Those things are, all of them, important. Really, from the point of view of the painter, these things seem to be of minor importance in connection with the matter, because dust is the cause, and what has got to be done with him is to educate him to the risk of dust, and then to educate him to the fact that if he provides ventilation where he works he is going to escape. I think one of the most important things with regard to painters is education with regard to the risk. I think that in regard to rooms where painting is carried on, *i.e.*, painting shops, you should have definite regulations, and that you should not be allowed to paint in a shop unless you provide ventilation. In those places also I think you could lay down that men have to wear overalls, and you could make it necessary to provide washing basins and things like that. I think those are all highly desirable.

9939. And just as desirable in the house painting, if it is procurable, to supply them?—Just as desirable as in a white-lead factory.

9940. Dealing with other admittedly dangerous occupations—take the masonry trade: is that regarded by the medical fraternity as a dangerous occupation?—Highly dangerous.

9941. Have you looked up the statistics to show the mortality amongst them?—I have them in my mind in a general kind of way. The mortality there from the special list is very dissimilar from the total mortality amongst painters; in other words, the death rate among stonemasons is much higher than amongst painters.

9942. Have you the figures?—No. I think the Board probably has those. I think the rockchoppers were 12·7 death rate from tubercle alone.

9943. DEPUTY-PRESIDENT: They are worked out for the Board in its report on pneumoconiosis?—Yes. The total death rates were not worked out in that report, but the special death-rate from tubercle amongst stonemasons and rockchoppers was 12·7 per 1,000 living.

9944. Mr. CONNINGTON: Did not the painters run out to 15?—No.

9945. The mortality rate amongst painters is 15, is it not?—No, it is 1·5.

9946. That is from lead-poisoning?—No, from tubercle. The total death-rate amongst painters is 12·9. Out of every 1,000 deaths amongst painters 151, or one-seventh, were due to tubercle.

9947. How do the masons work out?—The masons' figure is 12·5, or 12·7 from tubercle alone per 1,000 living; that is, it is about seven times as great.

9948. That figure is obtainable?—Yes.

9949. Since you commenced investigating at Broken Hill, have you any record of the number of cases of lead-poisoning that have occurred there, and which came under your notice?—No, we have not finally determined the number.

9950. Have there been many cases?—The position that we are in at present is that we have not settled the question as to what is lead-poisoning. What we know is that there are 474 cases. We can say straight off that about half of those are due to other causes, so that out of the total number at Broken Hill we now have so far 220 possible cases of lead-poisoning, which again is to be still further reduced. Whether we are going to break them up we do not know. Of the number of definite cases of lead-poisoning that we have made, there are very few. I think there are only about thirty cases which we medically call lead-poisoning.

9951. Have you ever dealt with stonemason's cases yourself?—Yes.

9952. Many of them?—We examined about fifty of them here for the Board of Trade.

9953. DEPUTY-PRESIDENT: I think they were rockchoppers, were they not?—Yes.

9954. Stonemasons must, I think, be regarded as men who are occupied in building trades only?—I see.

9955. Mr. CONNINGTON: The rockchoppers work in the sewer.

9956. It was rockchoppers you examined?—Yes.

9957. Have you examined masons?—Never as a group; only in the ordinary course.

(Witness retired.)

SYDNEY NORMANBY WILLIAMS, recalled, further examined,
as under:—

9958. DEPUTY-PRESIDENT: You were to have referred to your notes for the purpose of determining whether you could produce to the Board documentary evidence of the character and methods of the experiments you made as to the durability of white-lead paints as compared with paints of another base?—Yes.

9959. Have you any documents with you?—No. I went over my notes, and I could not find any of those papers whatever. The only papers I had were the general analysis of different paints and also ochres. As regards the experiments on the white-lead as against zinc-white, I could not find those experiments. It is not usual to save things like this for any period of time. In a case like that the experiments were just gone through for my own benefit, and then the papers were put aside. They are in one of the note-books, but which note-book I do not know.

9960. Then you had better give us the general effect of the experiments you made?—I found that on mixing the white-lead with oil, and mixing the zinc-oxide with oil, and painting it on a board, that after, I think, five months, the oil dried into the wood in the case of the white-lead, and left the white-lead exposed and chalky; whereas in the case of the zinc-oxide, it was a hard film, quite capable of being washed and scrubbed.

9961. That is at the conclusion of the same period of time?—Yes. They were both placed beside one another on a board about 8 inches square and exposed at different times in the sun and in the shade. The white-lead that I tried on that occasion was the ordinary commercial white-lead. It was analysed—it was the general run of the basic lead carbonate.

9962. That is, you bought it not by brand?—No. I just got it as white-lead.

9963. Did you buy it yourself, or was it supplied to you?—I just bought a small quantity of it.

9964. Is that the only experiment you have made?—I also gave each board three experiments at the expiration of the time. I found that each coat of the white-lead dried quicker than the zinc-oxide did. For an equal amount of white-lead to an equal weight of zinc, I found that the zinc would cover more—practically hide more; about 25 per cent. more.

9965. You mean covered in respect of both opacity and spread?—No. In the case of opacity, that is covering up the direct surface of the board, I found that the white-lead and the zinc-oxide used in equal quantities, not counting the oil, worked in this way, that the zinc oxide was a greater coverer than the lead was.

9966. In relation to both opacity and spread?—In relation to opacity. In the case of the spread, the zinc-oxide will spread further.

9967. It will spread further, but more coats have to be put on?—Yes. You will have to put about four coats on in the place of three coats of lead.

9968. And in making the general adjustment, you regard the covering effect of the zinc-oxide as superior to the covering effect of the white-lead?—Yes, and apart from that, its durability.

9969. Over what period of time did you extend those experiments?—That was running for, I think, a period of about eight months. After that I was appointed assistant teacher for the Newcastle Technical College, and I was not able to go on with that.

9970. Do you desire to make any statement or express any opinions with regard to the risks incurred by the corroder?—Under present conditions, no.

9971. Do you think that the conditions are such as will safeguard his general health?—They safeguard the general health of the corroder, but it is admitted as being poisonous, and I think that it should be regulated. As regards the use of outside paints, in the case of the chalking, I consider it should be mixed with another base so as to do away with that chalking.

9972. That is apart from the actual work of corroding lead; the lead must first of all be corroded before it becomes mixable with any other medium?—Yes. As regards that I do not see anything against it, because it is kept under strict supervision.

9973. With respect to the glow lamp, what have you to say upon that subject?—A man working with the glow lamp usually follows his work and is standing over the top of the work. The fumes that are arising and the dust that is arising are inhaled by that painter. In the general run, he is only standing about 18 inches from his work, and I do not see that there is any way of taking that air away in the general run of work except by using liquid removers.

9974. What is in the hot air that is thrown up by the glow lamp?—It would contain whatever the paint was composed of.

9975. In the form of dust or in the form of gases?—It would be in the form of a gas or fumes, and also in the form of dust. The lighter particles would rise with the fumes and the pressure of the flame, and the heavier dust would sink. Also in scraping there is a certain amount of dust created.

9976. Would the flame actually create a dust?—Yes, there is a pressure in that flame.

9977. And you think that it would oxidise the film and lift it from the painted surface in the form of dust?—In the form of film, and also in the form of dust.

9978. In the form of dust one can understand that it would have much the same chemical character as that of the film. Is that your opinion?—Yes, in the form of dust.

9979. The process of burning would not alter its chemical character?—It would alter some of it. In the other case you would be oxidising your lead.

and it all depends upon the ingredients of the material, whether you are forming a carbonate or a sulphate, which the man would be taking into his body in a volatilised form which would condense in the process of swallowing.

9980. Your theory is that the film is reduced to powder, and spread in the air where the painter is breathing?—Yes.

9981. You also say that there are fumes?—Yes.

9982. That is, gases as distinct from dust? Yes.

9983. Which are also disseminated in the air where the painter is breathing?—Yes.

9984. What would be the character of those fumes?—They would be mostly of a carbonate and an oxide of lead.

9985. Have you tested those emanations at all?—No. I have tested the scrapings by liquid removers to find the composition of the paints, but I have not tested the fumes arising from the glow-lamp.

9986. So that you are speculating on the basis of your general chemical knowledge?—I do not say that I am speculating. It is on the chemical knowledge, and also on similar work in the laboratory on light articles.

9987. You have made some experiments on the glow-lamp in the laboratory?—Not in the laboratory. On heating with a Bunsen flame any of those classes of material you get your knowledge of that in your first year.

9988. What did you find on using the Bunsen burner?—I did not go in for an experiment on those lines. I am just taking what happens on treating chemical salts of a similar composition to the paint material.

9989. That is, you are drawing the inference from your general chemical knowledge with regard to what should be produced by the flame of the glow-lamp on the film of carbonate of lead?—Yes.

9990. And you favour the use of wet paint removers?—Yes.

9991. Have you had experience in their use at all?—Yes. I have experimented on paint removers for over two years—a very simple and cheap remover.

9992. What is the vehicle in the ordinary paint remover?—Alcohol and benzol, or benzine from a coal tar product.

9993. Are they quite effective?—Quite effective.

9994. They can be compounded by anybody?—Yes.

9995. And made without undue cost?—Yes, but under Customs supervision; that is because of the duty on alcohol. •

9996. It is not a methylated spirit?—No.

9997. You are familiar with the handling of zinc-white?—Yes.

9998. What is your experience in that connection?—I was manufacturing zinc-white from all classes of zinc material for twelve months with Lysaghts, and for about two years with Miller's Zinc Oxide Co.

9999. Are there any risks incurred by those who handle the zinc-white?—None whatever. I have worked with men who have been engaged in that industry for nearly ten years packing, and the room at times would be so dusty that you could hardly see your hand in front of you, and those men are in perfect health.

10000. Is the combination of the zinc-white with the oil a combination that is likely to alter the effect of handling the zinc-white?—None whatever.

10001. Can the paint so compounded be burnt off with the glow-lamp with impunity?—Yes.

(At 1 p.m. the further hearing was adjourned until 2 p.m.)

(On resuming at 2 p.m.)—

Examined by Mr. CONNINGTON:—

10002. Have you made any analysis of the dry lead?—No; it has all been in oil.

10003. You have made analysis of paints?—Yes.

10004. Lead paints and zinc-oxide?—Yes, also lithopones and paints in general.

10005. For the purpose of ascertaining the extent of poisonousness in either, have you ever examined paints with that object?—No, I have not done anything in that line, but I have seen quite a number of lead-poisoning cases—painters.

10006. You mean men who have said they were lead-poisoned?—Yes, and a doctor said they were lead-poisoned.

10007. Have you met many cases?—Fully half a dozen cases, and I was in hospital beside a man who died of lead-poisoning; that was in Charters Towers, Queensland.

10008. Would they be mine-workers?—No; he was a painter, a man named Botterill.

10009. Of the men who were lead-poisoned, were any of them painters?—I think there were four painters and one lead-worker who had been working in Broken Hill.

10010. I suppose you are not capable of diagnosing a case of lead-poisoning?—No.

10011. Have you ever worked as a practical painter?—No.

10012. You could not give us any evidence as to the possibility of avoiding risk to health while carrying out the operations of a painter?—Well, the man being in contact with it, and the paint being in floating form, unless it comes in contact with his body, I do not see how he can become poisoned. The only way I can see of a man becoming poisoned is by absorbing the lead through the tissue or from the dust from the glow-lamp and the fumes.

10013. You believe that he can be poisoned by getting the lead into the system through the skin?—Yes. A case much similar to that you will find in mercurial poisoning. It is very common in Charters Towers to see men, especially amalgamaters, become mercuried, and if you pass them a sovereign, after they have washed their hands in boiling hot water, they will be capable of silvering that sovereign.

10014. Have you any evidence you can give us with regard to lead-poisoning?—No, I do not know of any.

10015. You think that a man may be poisoned by absorption through the skin?—Yes, with the conveyor that is in the paint.

10016. What is your reason for saying that; I mean to say that some medical evidence which has been given here has been contrary to that?—I take it that the conveyor that is with the paint is absorbed into the tissues and carried into the blood in much the same way as mercury is. That is the only analogy that I can give.

10017. I think it is admitted that if you had a sore on your hand lead could poison it in the same way as many things could poison your sore?—Yes.

10018. Apart from that, you think that with sound flesh, poisoning can take place through absorption?—Yes.

10019. Apart from those experiments, have you ever done any painting work?—I have done it myself.

10020. Rubbing down?—No, no rubbing down.

10021. But you can understand the operation?—Yes.

10022. You understand that the lead would be dry; the object is of course to remove the lead?—Yes.

10023. You are not in a position to speak as to the practicability of providing some sort of draught ventilation for men engaged in ordinary house-painting?—As regards ventilation generally, I was in the Hampden Cloncurry Copper Mines, and unless using water to keep down that dust, I do not see any practical way of doing it.

10024. How do you suggest the water might be used?—Through a hollow drill.

10025. Would it be a continual spray?—No. As the hole is being bored, it is pumped through the hollow drill and it moistens the dust as it is broken.

10026. In other words, it is at the time the breaking operation is going on that the water is mixing with the material to be broken?—Yes, at the foot of the hole.

10027. You know how a painter would work?—Yes.

10028. On the assumption that when he is rubbing down small fragments of lead are in the air?—Yes.

10029. You cannot suggest any method by which exhaust ventilation might be applied so as to remove him from the danger of inhaling any?—Nothing whatever. The only way I can see to get over that difficulty is by wearing a respirator. I was mining in very dusty places, and that was the only way we could find against the dust. Apart from that, my father took miner's phthisis eight years after leaving the mining industry and he died.

10030. Dr. Legge is opposed to the wearing of respirators; he did not regard that as a feasible solution of the problem; but he thought that respirators and providing a supply of fresh air would be an entire protection with regard to burning off?—As regards that, I wore a respirator for three years in the St. George Mine, and I must say that they are most uncomfortable; and you will not find 10 per cent. of the men who will wear one. As regards boring operations in close corners—practically dead ends—the miner will not use the water, because the temperature becomes so moist that they cannot work there. That is another danger on top of the other.

10031. The effect of what you are saying is that, although the water prevents the likelihood of risk in one way, it embodies a danger in another?—In a closed room or in a closed stope.

10032. You have heard Dr. Chapman's evidence with regard to notification of the disease?—I heard a part of it.

10033. In cases where persons are found to be susceptible to the effects of lead, and in cases where men actually suffer from lead-poisoning they should be notifiable; do you approve of that?—Yes.

Cross-examined by Mr. MANNING :—

10034. I understand you carried out some experiments to show the different effects of lead-paint and zinc-oxide paint?—Yes.

10035. But you have not got the result of your experiments here?—No. At the same time I have no fear that such experiments can be carried out and the results prove likewise.

10036. [*Handing witness two pieces of painted wood, which were afterwards marked Exhibits 27 and 28.*] I want you to look at these samples. Would you say that this surface [*Exhibit 27*] was zinc-oxide or lead?—I would say it was a mixture.

10037. Would you say there was zinc-oxide in it?—In a case like that it is a very hard matter to state exactly what is in it.

10038. You are familiar with the surfaces?—Yes; but it has a slight glaze which zinc-oxide would give. Apart from that it seems to be too solid to be lead alone.

10039. In other words, you think it has zinc-oxide in it?—Yes; I think it has zinc-oxide in it, or some such substance.

10040. Look at the surface of the other [*Exhibit 28*]; what do you say that is?—I would take that mostly for lead. Of course a lot depends on the way the zinc-oxide is mixed and the way in which lead is mixed.

10041. Will you say whether, in your opinion, that was lead or zinc-oxide?—I would not care to express an opinion until it is analysed. You

see, that may have been exposed for three years, and zinc is liable to crack at the end of that time. With regard to lead, I would not expect to find a lead surface in that condition after six months.

10042. So the first paint I have shown you, is, in your opinion, a zinc-oxide paint?—No; it is a mixture.

10043. And the second one you think is lead?—I think there is a good quantity of lead in it.

10044. Cannot you tell?—Absolutely no. I would not attempt to.

10045. You say that so far as the surface is concerned you cannot tell by looking at it afterwards whether it is zinc-oxide or lead paint?—No, I would not say candidly that it was.

10046. I am not asking you would you say that it was. I am asking you would you say that you can tell the difference by looking at it between zinc oxide paint and lead paint?—It is very hard to distinguish.

10047. Can you do it?—No, I would not attempt it.

[*Sample of painted wood put in and marked Exhibit 27.*]

[*Sample of painted wood put in and marked Exhibit 28.*]

10048. Supposing *Exhibit 27* is zinc and *Exhibit 28* is lead, does the condition of those two surfaces practically represent to you the difference between a zinc-oxide and a lead paint after it has been on for some time?—Yes. The first one would give me the impression of being a zinc-oxide, and the other a lead paint, for this reason, that it is discoloured, and there are also cracks in the material. I think that would be a zinc-oxide or a lead paint which has been rubbed down.

10049. I ask you to assume that *Exhibit 27* is a zinc-oxide paint pure and simple, and *Exhibit 28* is a lead paint pure and simple. In your opinion, would that surface indicate the difference between the two substances that you have deposed to in your evidence to-day; in other words, would you say that *Exhibit 27* was a better surface than *Exhibit 28*?—Yes, but *Exhibit 27* appears to have been rubbed up after standing.

10050. Never mind what has been done to it?—But you are asking me for an opinion and I think I am at liberty to express an opinion.

10051. Will you say that the comparison of these two [*Exhibit 27 being a zinc-oxide, and Exhibit 28 being a lead paint*] fairly represents the evidence you wish to give about the relative merits of the two?—Yes.

10052. I take it that you referred to this cracking shown in *Exhibit 28* as distinguished from that shown in *Exhibit 27*?—Yes, I expect that condition to be zinc-oxide.

10053. And you regard the cracking as shown there as a more serious thing than that shown in the other?—Yes.

10054. By the way, you come here to speak as an expert do you not?—No, I do not.

10055. What do you come here to speak as?—My idea is to speak of the injuries that are caused by painting with white-lead and with using the glow lamp.

10056. Did you not say this morning that you regarded the zinc oxide surface as a surface better than the lead surface for certain purposes?—Yes, which is recognised.

10057. The question is what do you recognise?—I recognise the zinc.

10058. So that to that extent you are speaking as an expert, I suppose?—Yes, I am.

10059. Have you qualified yourself to come here and speak as an expert on this?—Yes.

10060. What steps have you taken to become acquainted with the relative merits of these two surfaces?—I am not dealing with those two surfaces.

10061. I am asking you what claim you make to speak as an expert on those two surfaces, making a comparison of them?—By the condition of the articles as you have shown them to me.

10062. You have not qualified yourself in any other way?—I do not follow you.

10063. Have you made any microscopical examination of surfaces that have been painted with zinc, and those that have been painted with lead?—No.

10064. I will ask you to do so now. Do you know how to work a microscope?—Yes.

• 10065. [*Handing a microscope to witness.*] Will you adjust this to your proper focus and make an examination now of *Exhibit No. 27*?—Yes, I have looked at it.

10066. Look at it again carefully and bear that surface in mind. Now look at the surface of *Exhibit No. 28*?—Yes, I have done that.

10067. Comparing those two surfaces which do you say represents more effective resistance to the weather?—I say that *Exhibit No. 27* appears to.

10068. Which would you say represents most cracking?—*Exhibit No. 27* appears to have the greater cracking, but *Exhibit No. 28* appears to have a greater chalkiness.

10069. Never mind the chalkiness for the moment. This cracking in *Exhibit No. 27* goes straight through to the wood, does it not?—Well, it is a hard matter to say whether it does go through to the wood.

10070. Cannot you tell by the microscope?—In this case I could not see right through to the wood. You can see the lifting and the cracking, and then there is a dark surface which may be due to the reflection.

10071. Will you swear that dark surface is not the wood?—I am not in a position to say whether it is or not.

10072. You say that in your opinion, with regard to those two films, the better from the point of view of weather resistance is the zinc-oxide?—No. I say that one film is showing cracks and the other is showing chalking.

10073. Which do you say is better from a weather resisting standpoint?—I cannot say which would be the better in that case.

10074. Do you know anything about the relative merits of lead and zinc-oxide paints, as regards an effective paint?—On painting with white-lead the surface is dull, unless certain things are put in to brighten it. With zinc-oxide you receive a bright finish when it is dry.

10075. It is merely the brightness of the outside appearance that you are concerned about?—And also as regards the injurious nature of the white-lead; and the life of the zinc is said to be twice the life of the lead.

10076. Supposing you were told that that zinc-paint had been on the exhibit for twelve months, and that this lead-paint had been on for three years and nine months, would you alter your opinion then as to the relative merits of the two?—No.

10077. You would still remain of the same opinion?—Yes.

10078. Is this the first time you have ever seen these things under a microscope?—No, I have been connected with different classes of industrial earths, and have also tested them with a microscope.

10079. Is this the first time you have ever examined these two paints under a microscope?—Yes, in a case like that.

10080. And having examined them under a microscope, you still remain of the same opinion as to the relative merits of the two paints?—As to the lasting character, yes.

10081. So if you wanted to paint your house now, you would prefer what you saw under the microscope in *Exhibit 27*, to what you saw in *Exhibit 28*?—No. I would prefer zinc-oxide, because I would be capable of washing it down and keeping the place clean, whereas, as regards lead, it

becomes black in a short space of time, and if you wash it down it chalks, and you are not able to keep it so white.

10082. So you are concerned really with the appearance of the thing?—And the lasting qualities.

10083. Supposing that zinc-oxide had been on only for twelve months and the other for three and three-quarter years, would you say then that for lasting qualities you would prefer this zinc, having seen what you saw under the microscope?—It would be a hard thing to get over that question.

10084. I am asking you to get over it as best you can. You have seen these now through the microscope, which you have never seen before, and I ask you, if you were concerned only about durability, would you choose the zinc to the lead after what you have seen?—Yes, I would choose the one that you say was on twelve months, on Exhibit 27.

10085. You would choose that in preference to Exhibit 28 for durability?—No.

10086. That is what I asked you?—I would choose Exhibit 28 as regards durability. I might say that in testing small things like this it is a hard matter to decide. You require the paint on two buildings close to one another, under similar conditions, and the same mixtures, and also in different localities. Testing boards like these is a very difficult matter, unless you are dealing with something like 12 square feet or more of surface. I do not see that you can get a relative result by dealing with pieces of board that size.

10087. You know that the microscope would be the same, no matter what size you used?—Yes, but the method of application is different.

10088. Do you seriously suggest that that would make any difference to the view you have just expressed now as to the question of durability, if you had a board ten times the size of that?—I say that if you were painting a board—

10089. Just listen. Would it make any difference to the opinion you have already expressed as to the durability of these two films if you had a board ten times the size?—No, it would not make any difference.

10090. Then what are you talking about the size of the board for?—Because when you are painting a board which is 6 square inches you dip your brush in, and you are giving it an undue coating, whereas when you are spreading it over a surface of over 12 ft. by 12 ft. it is a different thing altogether.

10091. So that you suggest that these boards have not been properly painted?—I could not suggest that.

10092. Then what do you mean?—I mean that by painting it on a small piece of board that size you would not get a correct result.

10093. That is all you can say?—Yes.

10094. Can you tell us why?—If you take an instance of preparing enamelled leather, for example, if you cut a piece of leather just a few inches square, you dip your brush in and paint it over that, and by the time it has received three coats you will find that on that drying it will all flake, whereas if you were dealing with a full skin and painted it all over, you will find you have a pliable substance.

10095. Do you mean to say that if that board were ten times as long you would get a different result?—Yes, you would get a different result.

10096. You will swear that, in your opinion?—In my opinion you would.

10097. Do you apply the same reasoning to both those pieces of board?—Yes.

10098. Supposing you were told that that white-lead piece of wood was cut out of a piece 6 feet long would you alter your opinion in any way?—And what width?

10099. And 1 foot wide. Would that in any way alter the opinion you have expressed about it not being a fair criterion?—I consider 6 feet x 1 foot

a fair criterion. Of course, one experimenter dealing with similar articles would get a different result from another, and under what appear to be like conditions. That comes to the question of who puts the paint on. The whole thing right through.

10100. Do you say that you know six people altogether who have died of lead-poisoning?—Yes.

10101. And I think you said four of them were painters?—Yes.

10102. I suppose you did not examine them yourself?—No.

10103. And you do not know anything about them except that they were said to have died of lead-poisoning?—Yes; they were known to have been suffering from lead-poisoning for some time. One man in particular entered the hospital and died an agonising death, which the doctor said was lead-poisoning.

10104. Did the doctor tell you that?—That was on the death certificate. The nurse told me. I was a patient in the same hospital.

10105. And you were interested in what the other people died of?—As it happened to be in the same ward I could not help being interested. You are made to be interested even if you do not wish to. When a man is dying in agony you ask what is wrong.

10106. And the nurse told you he was dying of lead-poisoning?—Yes.

10107. You expressed an opinion about the opacity of zinc oxide paints as compared with lead paints?—Yes.

10108. Do you still adhere to that statement after what you have seen through the microscope?—Yes.

10109. From what you have seen of those two surfaces, you say that the fault you have to find with one is that it is chalky?—Yes, under the microscope.

10110. And in the other you observe the cracks which you do not observe in the lead paint?—Yes; but more than likely if a zinc paint is painted on (I do not say that it is a zinc paint) a wet surface, or a moist surface, that is liable to lift the paint.

10111. Is it liable to crack in that fashion?—Yes.

10112. If that is so, and it lifted right off the surface, you would see through the crack to the surface?—Not in the microscope.

10113. You say that if it were painted on a moist surface it would lift the paint off the surface, and there would be a crack on it?—Yes.

10114. And if you looked at it through a microscope you would see through to the wood?—Yes.

10115. I ask you now again, do you not know perfectly well that what you saw through the microscope was the wood?—No. When that microscope was focussed on to that, you could not swear that that was the wood, because what are seen are dark spaces, and you would have to lower your microscope still further to see if it was possible to see.

10116. Do you mean to suggest that the film was of that thickness to cause a dark space? Supposing it were on a white sheet of paper, do you mean to say you would see those black streaks?—Yes, between the two linings.

10117. Even with white paper underneath?—Yes, with white paper underneath.

10118. You will swear that?—I do, as regards the microscope, certainly.

10119. Just have another look at Exhibit 27 through the microscope; will you swear that is not wood you see through there?—I could not swear what that really is.

10120. Will you swear it is not wood?—No.

10121. Will you swear you do not know what it is?—I will swear that I do not know what it is. In microscopical work it is a very hard matter to tell what the spaces are.

(Witness retired.)

ROBERT OLIVER GEARY, sworn, examined as under :—

10122. DEPUTY-PRESIDENT: What is your position?—Works Superintendent of William Docker, Limited.

10123. They are varnish makers?—Varnish and enamel manufacturers.

10124. How long have you held that position?—Six years.

10125. You are aware of the nature of the inquiry that is proceeding here?—Yes.

10126. The Board is inquiring whether white lead as used in the painting industry is so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments. Necessarily, in the course of that inquiry a number of subsidiary issues are being raised and dealt with. Will you, in the evidence that you propose to give us, deal with the main issue or the subsidiary matters?—I think I am in a position probably to give evidence on both. In regard to white-lead, I had about nineteen years' experience as a foreman painter or japanner, which covers both trades in that respect. In regard to the other, I wish to submit some evidence to the Board with regard to a pigment that there is not much known about here, and which has reached a stage which I think will be of interest to you.

10127. Tell us first of all, with regard to your practical experience, what is japan?—The japan I was speaking of refers particularly to applied paints or pigments to metal work.

10128. With a view to their being burnt?—Not the silica enamel, but the enamel which covers japanning refers to stove processes instead of drying them in the ordinary way; they are burnt on with temperatures varying with pigment from 120 degrees up to 500 degrees.

10129. What is the nature of the composition of japan?—Japan is a term which covers principally the liquid medium that is used. It is rather a difficult thing to explain. Japan, generally speaking, refers to a black lacquer, or a finishing varnish of that sort. In America it applies to many things, japan in America may apply to what we term gold-size. It is rather difficult to cover really what japan would refer to.

10130. What was the character of the japan with which you worked?—At the beginning of that time I was with Anthony Horderns' at their iron works, and it was principally white work, painted baths of all kinds, bath screens, trunks, and articles of that kind, sheet metal, cast iron, bedsteads, and all that class of goods.

10131. What was the base of the mixture that you applied to those coats?—Originally we worked principally with white-lead. We made our own enamels for the first five or six years, I think.

10132. How did you apply the white-lead?—With a brush.

10133. What was the liquid medium?—Taking it on metal work, the cast iron is prepared first with the filling, the same as other work is, but from the white-lead coating the first coat was usually mixed with gold-size and turpentine.

10134. Was the filler lead?—No; the filler was composed of what they call tough stuff now; that is, a composition of earth matters, slate, silica, and different compositions which are made in different ways by different people, and some of them contain a percentage of dry white-lead.

10135. Having filled the metal, what was the next operation?—After that it was rubbed down with pumice blocks and water, the same as coach bodies are prepared. Then the white-lead was applied, mixed with gold size and then with turpentine, or a turpentine substitute—sometimes both.

10136. In the form of how many coats?—Usually two coats of that were applied. It depended on the nature of the article. On tin and on some things

like that one coat would be sufficient; that is the first coat. Generally two coats were applied.

10137. Was the article then fit for the stove?—It depended on the time. If we were rushing the work through, each coat would be stoved, if not, using a fast drier it would be ready to work on the next day. Of course the room was always at about 170 degrees, which is a fair heat for drying most colours or pigments.

10138. Do you consider there was a risk to the operative in that work?—Well, in those days there certainly was, because each coat was rubbed down with sand paper or glass paper. This would apply to white work. In that operation, if there was a bath or anything that you handled on a bench, you were naturally close to it, and in papering those jobs you smoothed the coating of white-lead down before applying the next coat.

10139. Did that operation create a dust?—Yes.

10140. A visible dust?—Yes, a considerable dust, and more especially afterwards, when you removed the powder from the article with a duster, which the painters always used.

10141. A dusting brush?—Yes, a dry brush.

10142. How long is it since that process of enamelling has been set aside?—It still continues in some things, but I cannot speak for every shop, because I have not been in touch with them all. At present there are undercoats made by paint-makers which may not contain a very high percentage of white-lead. Being machine-made, the coatings are much smoother, and do not require so much rubbing.

10143. Is the enameller who is working for firms who are producing the kind of article you have been describing to us, regarded as a painter?—Yes, he would be a painter; in fact, you require more skill with the brush for enamelling than the average painter needs.

10144. Did you suffer from any illness during the course of your experience at that work?—Not to any extent. The only thing I suffered with periodically when I was in the business was rheumatism, but not really severely.

10145. Did you see a number of men about you in ill health?—I suppose I had a good many men pass under my supervision at the time.

10146. Were you a foreman then?—Yes, I was practically in charge as leading hand at the commencement, and I was foreman in charge of a shop for about 15 years out of that period. During that time there was only one man who I could say definitely died from lead-poisoning, and he was a man of about 52 or 53 at the time. I will admit that he was a man who was very dirty in regard to his personal cleanliness. Most of the others were men who came and went.

10147. Where did you recruit your workers from?—I had several boys whom I trained during that period, boys of 15 and so on.

10148. Did you write to the Painters' Union when you wanted new hands?—Not at that time. The jappanners did, I believe, try several times to form a union, but there were not sufficient of them, and there was no miscellaneous union at that time.

10149. They did not regard themselves as painters?—They did not come under the Painters' Union in any case, although when we had extra work, or a man left us, we sometimes had to take on an ordinary painter.

10150. What union do they belong to now?—I could not say.

10151. Is there a union of enamellers?—Not that I know of.

10152. What is black japan made of?—That is an asphaltum black, as a rule.

10153. It is a bituminous paint?—Yes.

10154. Mixed with what?—Mixed with oil and a certain amount of gum and a drier. Of course there are air-drying japans or blacks, and stoving blacks.

10155. Do they contain any lead except that brought into them by the incorporation of the drier?—No.

10156. So that they may be disregarded for the purposes of this inquiry?—Yes. There is nothing poisonous about the blacks, as far as I know. The men frequently apply that with their hands.

10157. Have you given us all the evidence you desire to give us with respect to the japanning?—That was the only man who died, and I will admit he was very dirty in his habits. He was also a man who had been a painter in England, in the railway shops, before he joined us.

10158. Is it likely that he was leaded before he arrived in Australia?—I could not say. I only know that his was a case of lead poisoning, and I saw the man gradually develop the paralysis.

10159. Was his condition of health due to any complication of diseases at all, do you think?—I could not say.

10160. Was it lead poisoning plus something else?—It may have been, because he was a man who drank rather heavily.

10161. Will you pass now to the matter of the substitute of which you desire to speak to the Board?—I want to explain to you that the evidence I have of this pigment is through our principals, who represent the firm of Cookson and Company, Limited, Newcastle-on-Tyne. They are white lead corrodors, and have been in the business for a couple of centuries, or something like that. In submitting this evidence, it is from people of repute. The pigment which they are now manufacturing is called Timonox, which is their trade name for it. It is oxide of antimony. Personally I have only had this matter in hand since April. I have carried out several experiments in regard to this. You will see by the papers which I produce that Cookson's, although they are lead-makers, thoroughly understand that end of the business. They claim for this pigment that it is equal to lead in every respect, and superior in most respects to zinc-oxide. We are able to back that up by chemical evidence, and also by experiment. I have some of the pigment here.

10162. MR. MANNING: I do not know that it is much use in acting on what these people send out as their testimony about this thing.

10163. DEPUTY-PRESIDENT: I think the witness had better give us the result of his experience.

10164. You see, the difficulty is that you accept these assertions that are made for particular purposes in good faith and convey them to us, and we are unable to check and test the value of the opinion that is the foundation for the trade advertisements. Let us hear what you have to say?—I just want to say that this evidence comes from a reputable firm. I am not boosting it for any trade reasons. We have not sold one halfpennyworth of the stuff, and we have not tried to sell it. I think you will admit this, that if this were a medical inquiry, and we brought evidence from the British Medical Association, or any well-known physician or doctor in England, that evidence would be admitted on paper. You could not get it any other way.

10165. But do you compare the trade enterprise with the opinion that is medically?—I only want you, gentlemen, to take this into consideration, as I understand evidence has been given to show there has been—

10166. Certainly—so far as you can assist us to determine whether this is a superior pigment or not?—I do not claim it is superior. I only want to point out its advantages. I did not have sufficient notification to bring along anything like that.

10167. What has been the result of your observations? First, you have had an assurance from the manager of a good and reputable firm?—In the

first place, the pigment is non-poisonous. That is one of the things claimed for it. Of course, we cannot bring along the actual wood, but can you allow this (producing an exhibit)?

10168. Tell us what you can say with regard to that sheet?—From personal tests, it has the same covering capacity as lead. It is a much smoother pigment and it is an inert pigment. That is to say, there is no chemical effect on any medium you mix it with.

10169. There is no chemical reaction between the base and the vehicle?—No, it is an inert pigment. The only difference there is in that case is that you have to add sufficient dryer to your medium to make up for that. I mean, white lead and zinc oxide are all more or less dryers when they are mixed with linseed oil, and you must use mediums it is suitable to mix it with.

10170. And the antimony base does not tend to dry the composition?—No, it does not act as a dryer. According to all the chemical analyses and evidence given by chemists outside of Cookson's—I have here simply a trade book on "Antimony" as an oil—and there are several notes by well-known French chemists, although I do not know if you will allow me to read them.

(Witness referred to a text book on the subject of "Antimony; its chemistry, metallurgy uses, &c." by Chung yo Wang, and quoted the footnote to page 155, as follows: "In 1850, J. Brachet, Professor of General Pathology at the Ecole de Medecine, Paris, in discussing the lead-paint, stated: 'Is it possible, in the painting of buildings, to replace white-lead by some other metallic substances less poisonous? Is it possible to employ white oxide of antimony; as proposed by Ruelz? . . . in order to dispense with the use of lead paint, it is necessary to have a great quantity of the mineral. If one could open up one of some of these mines, he would then do a great service, not only to industries and arts in general, but above all to humanity. It is to be hoped that the Government will encourage this branch of this industry. The great problem of preventing lead disease will then be dissolved.' Also the Chambre de Montlucon adopted, October 13, 1901, the proposition to replace the use of lead paint by that of antimony white, and to encourage the general public to use it from the hygienic point of view. With regard to this question, consult *La Crise du Plomb*, par G. Hybert, 1901.").

10171. WITNESS: The reason I spoke of that was that some members of the Board might be under the impression it is a nitrate pigment, but the explanation there was at that time they could not obtain the antimony in sufficient quantities to produce the oxide. I have to refer to Cookson's because to the best of my knowledge they are the only people so far who are trying to make it a commercial proposition.

10172. DEPUTY-PRESIDENT: You have put a photograph before us from the original series of samples?—I can only submit samples which were applied in Los Angeles, in America, by a smelter and he was content with the crude pigment which they got in the process of smelting. I will have to produce him to give his evidence on oath to be any good. But that is really the only long sample, and that was exposed for two years to the weather. I can give you this on my oath, I know the man is right, although it may not be admitted as evidence. It is quite unaffected by the weather.

10173. You have seen it, have you?—I have it in my possession to-day.

10174. Mr. MANNING: You have been connected with them since April?—My experiments only date from April.

10175. Your own personal knowledge goes back as far as April?—And that was this man who was smelting with the Star Smelting Company in Los Angeles.

10176. But your knowledge does not go beyond April?—No. Personally I have read about it in trade papers interested in it, but was unable to make any experiments until I had the pigment.

10177. DEPUTY-PRESIDENT: Have you used the pigments at all?—Yes, in making enamels, varnishes, and different paints with it.

10178. Have you applied the enamels and paints?—Yes.

10179. Are they holding well?—Yes. I do not speak now from any chemical knowledge; I do not profess to be a chemist, but I do claim to be a practical man.

10180. From the point of view of a practical painter you regard these as good paints?—I regard them as very fine paints as regards working and colour, and it has an advantage this way, that almost any colour used in tinting this pigment it has no chemical action upon.

10181. How do the prices of Timonox compare with those of white-lead? I believe it is somewhere about the same price, f.o.b. London, that is compared with the English rate.

10182. Do you know anything about its effects when inhaled into the human body?—You mean in the process of rubbing down.

10183. In any way at all. If any one were to breathe an atmosphere heavily laden with antimonial salts what would be the effect on the human body?—This is not an antimonial salt, it is an oxide of antimony.

10184. Is not that a salt of antimony?—I do not think you would class it as that. There are the different salts in that book, but they are obtained by treating the antimony with acids.

10185. However, you are not a physiologist, not a chemist?—No.

10186. Mr. CONNINGTON: You have had some experience amongst painters?—Yes.

10187. And during the time you were in the industry, was rubbing down carried out?—Yes.

10188. Do you regard that as a dangerous operation?—Yes, I do, so far as concerns a man being in a position to inhale and swallow the powder that he removes from the chalk coats.

10189. Is it possible to do good painting work and avoid that process?—With white lead?

10190. Yes with white lead?—No, I do not think so.

10191. It must be associated with the work of painting?—It must be rubbed down with something, or by some method.

10192. Have you, yourself, worked as an operative painter?—As a foreman I worked most of the time.

10193. You were a charge hand, I think you said?—And foreman.

10194. A working foreman?—I was for the first five or six years.

10195. Take a painter doing cottage work, work usually done by outside painters, would it be possible to provide a draught by artificial means to enable the vapour or the spray caused by rubbing-down to be carried away out of the reach of the painter?—I suppose it is quite practicable by means of a vacuum exhaust or on the same principle as a vacuum cleaner.

10196. Something that would work mechanically?—Yes if you could apply the power conveniently.

10197. You know how painters work—new work, old work, cottage work, and house work. Would it be possible or practicable, do you think, to put a scheme into operation?—It would be possible, but it would not be too practicable, I admit.

10198. For business purposes it would be regarded as impossible?—That is so.

10199. I think that is a fair way to put it. You are not a chemist and are not prepared to make suggestions?—No.

10200. Do you think there is any danger of a person being poisoned through the absorption of the lead through the skin?—I believe it is possible, from what I have studied.

10201. Is it not the common belief by operators and laymen that you can be poisoned by absorption through the skin?—Yes, I believe that is correct.

10202. I think your preparation is considered to be non-poisonous?—Yes.

10203. And can it be applied on outside work?—Yes.

10204. On the outside of a building?—Yes.

10205. It is really a paint?—Yes. There is no lead in it.

10206. Take the case of a man using that who had his hands bespattered as the result of a day's work; would there be any chance of danger to his health through absorption?—No, not considering that they make skin ointment from this, as they do from zinc.

10207. From the point of view of inhalation, do you think there would be danger to a man?—I do not think so.

10208. There may be some vapour or fume let off as the result of brushing?—That would only come from the thinner, or the volatile part of the paint.

10209. Mr. MANNING: Turpentine?—Yes, or substitutes, or whatever medium is used.

10210. Mr. CONNINGTON: Is there any turpentine in that?—This is made up both in dry form and in paste, similar to white-lead.

10211. Mr. MANNING: In its use as paint, you would have turpentine in it?—You would mix it with oil or whatever thinner or medium you chose.

10212. Mr. CONNINGTON: Has not turpentine been going out of use of recent years?—Yes, considerably, on account of the high price.

10213. Is that the only reason?—I think so.

10214. DEPUTY-PRESIDENT: You are not aware of the ingredients of this paste which is called "Timonox"?—Yes, it is simply this pigment I have here, which is part oxide of antimony and a percentage of barytes, dryers and linseed oil.

10215. I am quoting from the trade pamphlet you offered to us. "We, as pigment manufacturers, have realised that previous unsuccessful results obtained in the use of antimony oxide for pigmentary purposes have been due to the fact that the material has hitherto been manufactured without any particular study being given to the purpose for which it was to be used. 'Timonox' is not merely a chemical called 'antimony oxide,' but it is a pigment prepared by experienced pigment manufacturers for special use as a paint material?—You will find in some instances a percentage of zinc oxide can be added.

10216. But the manufacturers state it is not pure antimony oxide?—That is for practical purposes, just the same as pure white-lead without some barytes is a very difficult pigment to work—it is very inert.

10217. If you buy white-lead, do you not expect to buy industrially 99 per cent. white-lead and oil?—I am not prepared to say that. I am only speaking of what I know by experiment and from authorities on the subject of pigments, such as Toch who is recognised to be one of the greatest pigment chemists in the world, I think. He says it is essential to use a percentage of barytes with some pigments, to improve them for working conditions.

Cross-examined by Mr. MANNING:—

10218. You were speaking about the use of turpentine. As a matter of fact, turpentine is regarded by your people as a necessary ingredient in the use of these timonox paints?—We do not claim it is absolutely necessary, because any substitute will answer the same purpose as far as the application is concerned.

10219. As a matter of fact, you used it in the important tests you were making as to the relative merits of Timonox, lead, and zinc oxide?—My tests were made more for covering properties and not as to durability.

10220. But the Cookson people say, “. . . in each case, viz., pale boiled linseed oil.” They evidently regarded turpentine as one of the ingredients necessary to establish this on its true basis in a test with other things?—That may be so.

10221. Getting it up for the purpose of these tests, I suppose they would make it appear in its most favourable condition?—I would not be prepared to say that, but if you were testing it against white-lead you would use it in both cases so it would not matter whether turps or any other substitute was used, so long as both used the same.

10222. Do you assent to this proposition, when referring to the test with zinc oxide, lead, and timonox: “The failure of zinc oxide under these conditions is apparent and was not unexpected?”—I cannot say that; I did not write it.

10223. But do you assent to that—“The failure of zinc oxide under these conditions is apparent and was not unexpected?”—I would not say that personally.

10224. But you produce this as being the opinion of Cookson’s?—Yes.

10225. Do you not know this, that it was regarded and has been regarded for some years, as more or less a joke in the industry to compare zinc oxide with lead?—Under certain conditions.

10226. Do you assent to this, too:

“White-lead showed results somewhat inferior to Timonox both as regards colour and chalking, but it was, of course, much superior to zinc oxide.”

?—I would not say that unless I had tested it to the extent they have.

10227. You would not accept it if Cookson said it was all right?—Yes, I accept it as authentic, myself.

10228. White-lead showed results inferior to Timonox, but was of course, superior to zinc oxide. Do you assent to that?—If you are taking it as evidence, I do.

10229. Do you want to look at this wording on the photograph?—No, I have read it.

10230. Mr. CONNINGTON: That is good enough evidence for you?—Yes.

10231. Mr. MANNING: This Timonox is an imported pigment?—Yes.

10232. It is not manufactured here?—Not so far.

10233. And I suppose the patent rights are run by Cookson’s in England?—I do not think there are any particular patent rights about that.

10234. You mean anyone can manufacture it here?—If they know how; yes.

10235. Is it a secret process?—A part of it is, but it is not patented.

10236. You can set to and manufacture it, can you?—Well, no.

10237. And if you could not, I do not suppose anyone else in Australia could?—Probably they could.

10238. Where are the ingredients obtained from?—In all parts of the world there is antimony.

10239. Is not that a proprietary paint of Cookson’s own?—No. You see, Cookson’s do not only make antimony. They make all sorts of mixtures with other alloys.

10240. Are you representing Cookson’s here, giving evidence?—No.

10241. Who are you representing?—The firms of William Docker and Ingham Clarke.

10242. Have you any contract with Cookson’s with respect to this stuff?—No.

10243. Did they send you here?—No. Our firm, which is an amalgamated firm of Docker's and Clarke's, are the agents for Cookson's white-lead.

10244. How do you come to be here? Did they ask you to represent them—did they ask you to write?—No.

10245. You only wrote of your own volition?—I did not write anything. Anything I have here was only brought along by Mr. Picot.

10246. How did you come to be here?—I received instructions from my firm to be here. The Board can explain it better than I can.

10247. DEPUTY-PRESIDENT: All the firms interested in substitute paints were given an opportunity to attend. It was difficult for the Board to get into touch with them, and the Board commenced by making the acquaintance, through Mr. Woodham, of the manager of Tylor & Sons, or the Australian representative of Tylor & Sons. He came and suggested the Board should place itself in communication with Mr. Picot, the gentleman referred to by the witness. Mr. Woodham, I understand, saw Mr. Picot, and as the result of that interview Mr. Geary has come to offer us such evidence as he can.

10248. Mr. MANNING: That being so, I suppose you were given all the literature on this substance, which was the only substance which you put on the market?—Certainly, I have the literature.

10249. It was given you by your employers to bring here?—No, it was sent to me a long time ago, because—

10250. Did you not get instructions from your employers what to do when you came here?—Just to give evidence on this matter.

10251. Did you bring these things on your own initiative, or were they given to you by your employers?—I brought them.

10252. Did they give them to you to bring here?—They let me take what I wanted. I did not know until 10.45 this morning, and I was here before 12 o'clock.

10253. They knew you were to speak on the use of substitutes, and that you had better equip yourself with the necessary information?—I did not want much equipment.

10254. Is that what they told you?—No.

10255. Did they tell you anything?—They left it to me.

10256. Did they tell you what you were wanted for?—Certainly; I was wanted to give evidence.

10257. On substitutes?—Not a substitute, but something which will answer the purpose that white-lead or other pigments will answer.

10258. They did tell you for what purpose you were asked? Did they give you any information on the subject of white-lead?—No; how could they?

10259. Did they give you any information on the subject of white-lead?—No.

10260. Did they give you any information on any other subject than Timonox?—No, they did not.

10261. So you were merely asked to come here and speak on the subject of Timonox?—I have spoken of other things besides Timonox. I am willing to discuss zinc oxide with you, or any other pigment I have had experience of.

10262. Then I will ask you to discuss zinc oxide with me. Have you considered the utility of zinc oxide with a mixture of barytes?—No.

10263. As a matter of fact, that is one of the main features of this Timonox, is it not?—Yes.

10264. And you know nothing about Timonox?—I do not say that. I said I had experimented since April with it.

10265. Have you discussed barytes in connection with zinc oxide?—No.

10266. You do not know what effect the combination of the two will have?—No, not in my particular usages.

10267. Do you know if there are any drying qualities in timonox?—I said it had no drying qualities.

10268. Does it always remain wet?—No, but it is inert as a dryer.

10269. How long does it take to dry?—That depends on the medium you mix it with.

10270. How do you sell it—in paint form?—No, they have not the paint form.

10271. You say you do not use dryers with it?—Yes, we do.

10272. To get back to zinc oxide and barytes, do you mean you have never considered the general effects of those two ingredients of paint?—No.

10273. Do you know they are not present in Timonox?—They are not present in that. You can use it without barytes.

10274. But you do not, do you?—I have tried it both with barytes and without.

10275. But with barytes?—Yes.

10276. Did you find it satisfactory, with barytes, as a paint?—Do you mean as to durability or usage?

10277. Durability?—No, I have not had time. I can only produce what you have there.

10278. You cannot say anything about the durability of Timonox?—Not before April.

10279. You really do not know anything about it except what you have read in these pamphlets?—In regard to durability, because it was only in April I made the experiment.

10280. So really you do not know anything about it?—Yes.

10281. You know it has a glossy surface?—It depends on what you mix it with.

10282. Do you know anything about it beyond the appearance of its surface?—As a practical man using it with the brush.

10283. If you know any more than its appearance, what is it?—I can say it is easy to work as any other pigment white-lead in a practical way.

10284. And it has a pleasant appearance?—Yes, and it covers well.

(Witness retired.)

DANSIE THOMAS SAWKINS recalled, further examined by Board:—

10285. DEPUTY-PRESIDENT: You have already been sworn. We want to ask you with reference to some correspondence that you have had with the Sanatoria whether there is any evidence of significance to be had from the records of those institutions?—Yes.

10286. Will you tell us what was the form of the letter you addressed, in the process of making an inquiry, to the heads of the Sanatoria?—The letter to the Secretary of the Waterfall Sanatorium, Waterfall, was as follows:—

“Dear Sir,—

“The New South Wales Board of Trade is inquiring into the causes of death and sickness of painters, and may in the future have to inquire similarly with regard to other occupations.

“Will you be so good as to inform me whether the hospital records contain data over a series of years of the occupations of persons who have received medical treatment at the hospital, and whether the records could readily be made available to the Board for statistical treatment.”

That letter was dated 20th July, 1921, and the answer to it was as follows:—

“During twelve years only 39 painters have been treated, all suffering from consumption. Five were arrested and able to return to work;

23 were much better and most able to resume work ; one was worse, while nine died during that period. Total number of cases treated is 5,497. Simple records are available."

That letter was signed by H. W. Palmer, Medical Superintendent, and was dated 23rd July, 1921.

10287. Do you attach any significance to the statement of figures?—I noted the proportion of cases of painters, to the total number of cases treated, and it seemed to be 1 in about 140. I remembered the statistics of the census, which showed that painters were perhaps 1 in 100, or perhaps there were a few more than would be indicated by the ratio of 1 in 100 in the general population of occupied males. There may possibly be, taking account of the coachpainters, perhaps 1 in 90, but anyway not less than 1 in 100. Here we find there was only one case of painters in 140 of the general population, so I did not think it worth while pursuing this record any further. It seemed to indicate, on the whole, less than the population proportion of painters, *i.e.*, painters to a proportion which would be less than that which might be expected by their mass in the population, were treated at Waterfall Sanatorium.

10288. DEPUTY-PRESIDENT: The question is whether it is worth while calling the Medical Superintendent of the Waterfall Sanatorium for the purpose of giving us evidence to the effect of his note, as read by Mr. Sawkins?

10289. Mr. MANNING: Personally, I do not think it is.

10290. Mr. CONNINGTON: What is the percentage?—It is 1 to 140 out of nearly 5,500. There were 39 painters altogether treated during twelve years.

10291. And the other classes are not classified?—No, that is just the sum total.

10292. And all the other classes, of course, — ?—There may be some women amongst them.

10293. The thought just flitted through my mind, in a population of 5,500 there were 39 persons designated as painters who suffered from consumption?—Yes.

10294. In taking that figure to represent 1 in 140, might not we mislead ourselves in forming any assumption on the figures?—

10295. DEPUTY-PRESIDENT: You might take it for granted the Board will form no assumptions, or draw no inferences, from the figures. The question is whether the Medical Superintendent should be called to give evidence?

10296. Mr. CONNINGTON: I am testing Mr. Sawkins to assist me in—

10297. DEPUTY-PRESIDENT: Then I am afraid the Board will have to shut out the evidence, because it will be hearsay. Mr. Sawkins can only discuss what is likely to be the value of the evidence which can be given directly by the Medical Superintendent.

10298. Mr. CONNINGTON: I am only taking advantage of Mr. Sawkins' presence to get the Statistician's point of view as to how to treat a mass of figures.

10299. DEPUTY-PRESIDENT: I have no objection to that at all.

10300. Mr. CONNINGTON: I would like to get the benefit of Mr. Sawkins' opinion as to the danger of assuming, or inferring, anything from a mass of figures. However, I can get those views privately ; they may assist me.

10301. DEPUTY-PRESIDENT: You are perfectly safe in assuming we are not going to draw any inferences or assumptions from the mass figures.

10302. Mr. MANNING: You may remember the figure of 7,000, which was mentioned during this inquiry, as the number of painters in New South Wales, according to the census of 1911? Do you recollect that figure?—No, I do not remember it. As a composite figure for painters, decorators,

glaziers, paper-hangers, and sign-writers in the Commonwealth, my figure was about 13,000, but I had none for the painters separately.

10303. I think you said the increase (in giving some other figures) presumably, would be in the same ratio as the rest of the —?—I did not say “presumably,” but that was the only assumption I could make to estimate a death-rate.

10304. DEPUTY-PRESIDENT: And you felt the assumption was fair?—Yes, for the purpose of computing that death-rate.

10305. Mr. MANNING: That was mentioned this morning, and that is why I asked Mr. Sawkins if he could recollect it.

10306. WITNESS: It may not be a fair assumption for other purposes. I can conceive of purposes for which that figure might be used, for which it would not be fair to charge me with that assumption. For that purpose, however, I think it was good enough.

10307. DEPUTY-PRESIDENT: There is no means known to you of discovering the exact proportion of painters of all classes, in the State at the present moment?—No. I am afraid we shall have to wait for another year until the Commonwealth census tables are completed.

10308. Or some bold inference must be made for the purpose of the inquiry?—Yes.

10309. And you suggest, although the inference may be bold, it is for the purpose of this inquiry, reasonable that we should assume that the painters, as ascertained by the census of 1911 would have increased in number correspondingly with the general population?—It is the only assumption you can make, really.

10310. Mr. MANNING: It is simply to provide Dr. Chapman with his data, because one of the calculations was based on the figure of 7,000.

10311. Mr. CONNINGTON: The painters may have no direct ratio to the rest of the population.

10312. Mr. MANNING: After all this mass of evidence has been gone into I do not want to have anyone turn round and say at the last moment: “Dr. Chapman’s calculation in that respect cannot be accepted, because there is nothing to establish his base of 7,000.” I understand it had been taken that there were 7,000 painters, or perhaps a little more; 7,000 was the number in the 1911 census.

10313. Mr. CONNINGTON: I do not want to raise any points which are not strictly helpful to the Board. To illustrate the point in my mind, supposing there were at the census of 1911, 200 horse-shoers, and the population had increased seven-fold since that, the reasonable assumption on the lines you have suggested would be that to-day there were 1,400 blacksmiths.

10314. DEPUTY-PRESIDENT: Not at all. First of all, a blacksmith is not necessarily a horse-shoer, and in the second place we all know there has been a very big development of social arrangements which tends to exclude the blacksmiths. Do we know anything in connection with painting?

10315. Mr. CONNINGTON: The idea is to show it does not necessarily follow that any class of persons must move in accordance with the population.

10316. DEPUTY-PRESIDENT: We do not say that. We say that in the absence of any knowledge that men have ceased to live in houses, or preserve and decorate their houses, or ceased to use and preserve their implements as they used to do, it is a bold but fair inference to say the services of painters have been required to a correspondingly greater extent lately than they were required ten years ago.

10317. Mr. CONNINGTON: Would not the occupation of the painter or his numerical strength depend on the number of new houses which were brought into existence, or the number of builders who required his services?

10318. DEPUTY-PRESIDENT: It is open to you to argue that more people live in houses now than was the case in 1911. If you do not argue to that effect it must be assumed there must be an excess of houses.

10319. MR. CONNINGTON: Assuming that it was five in 1911, then the proportion of painters to the number of houses would be x , whatever that may happen to be. If the population increases and is decided by the same table to-day—

10320. DEPUTY-PRESIDENT: Put it more concretely. If five people lived in houses to-day, what would be the result?

10321. MR. CONNINGTON: It seems to me, subject to further thought, we have to take a bold step and assume things are to-day as they were then; but it struck me there might be something in that point.

10322. DEPUTY-PRESIDENT: Inasmuch as manufactures have continuously increased in the last ten years, it is probable a very great deal more paint is applied to machinery and implements generally than was the case in 1911. Probably it would be very much in excess. I am prepared to assume, subject to argument, that the painting occupation class has increased relatively to the increase in population.

10323. MR. CONNINGTON: In a general way I am not prepared to suggest that is not quite so. That is also my impression at the moment.

10324. WITNESS: The impression I have as to this correspondence is that even if the population included women the ratio would be only about one to 70 and that would not show a very excessive morbidity from tuberculosis at this particular sanatorium. I do not know whether it would be worth while bothering the medical superintendent about it.

10325. DEPUTY-PRESIDENT: I would not pursue it further with him, but perhaps you might with the other sanatoria?—I have written to them and have only statements that they have records available.

10326. And they cannot give us anything further?—No, they cannot.

10327. DEPUTY-PRESIDENT: This inquiry must come to an end at some time, and it is impossible to pursue correspondence beyond a certain point. If persons who may or may not have records to give us do not offer to come forward, I do not think we can profitably press them to attend, and make studies of the conditions of the institutions over which they have control, because there is a chance they may be able to give something of value to us. Mr. Griffiths, who was before the Board on the 29th July, promised to add to his schedule, which was admitted as Exhibit 26, a statement showing the number of electrical mechanics employed at Randwick workshops who were absent from duty owing to sickness or injury received on or off duty, from July, 1918, to 30th September, 1921, in a more detailed form than he was able to give it in the course of his evidence. That document is now before us, and for what it is worth I propose to attach it to Exhibit No. 26. Mr. Goodwyn, the Insurance Manager who was before the Board on two occasions, promised on the second occasion to ask the State Government Insurance Office of Queensland to inform the Board with reference to a question raised by me. The Insurance Commissioner of Queensland wrote to the Board on 18th July, 1921, in the following terms:—

“Dear Sir,—

“Further to my letter of 7th instant to you, I am in receipt of a further letter dated 14th idem. from Mr. Goodwyn.

“At his request I have pleasure in advising you that the period covered by the claims reported, is for the two years ended 30th June, 1920. We have no statistics regarding white-lead poisoning prior to 1st July, 1918, and the figures for the year ended 30th June, 1921, are not yet available.”

That tends to elucidate the statement of experience in Queensland and enables one to check the inference that may perhaps be drawn.

10328. MR. CONNINGTON: It is 1918-20 the figures run to.

10329. DEPUTY-PRESIDENT: The two years ending 30th June, 1920. In order that this may be made available it had better be made an exhibit.

[Letter from John A. Watson, Insurance Commissioner, Queensland, to the President of the Board of Trade, dated 18th July, 1921, put in; marked Exhibit No. 29.]

(At 4 o'clock the Board adjourned till 10 a.m. the following morning.)

NINETEENTH SITTING.

WEDNESDAY, 3 AUGUST, 1921.

(The Board met at University Chambers, Elizabeth-street, Sydney, at 10 a.m.)

Present:

MR. J. B. HOLME, DEPUTY-PRESIDENT.

MR. ROUTLEY.

MR. COOPER.

RALPH JOSEPH PERDRIAU: previously sworn, further examined:—

10330. DEPUTY-PRESIDENT: You have prepared a table for us?—Yes. You asked for these cases of lead-poisoning to be identified. I have got them all but one. The case occurring at Stewart Bros., Camperdown, was that of A. D. Austin; that at A. G. Sayers, at Rose Bay, was John Osborne, that at E. J. Miner, Wahroonga, was E. Miner; that at Mason & Fletcher, Redfern, was J. H. Warden; that at F. Thomas, Woollahra, was Joseph Pakes. With regard to the C. S. R. Company, I have not yet been supplied with his name; they are short of staff down at the Sugar Company, and I have not been able to get that information. The case at the Building Construction Branch, the man aged 55, is Brown. The man aged 48 was Louis Bohm. The man in the employment of the Port Jackson & Manly Company is A. B. Jewry.

10331. This amplifies the table that you gave us on your second appearance before us, which referred only to the employers and did not give the names of the employees?—That is so.

10332. DEPUTY-PRESIDENT: The further information should be valuable inasmuch as it will enable us to identify individuals in respect of whom Mr. Perdriau has given evidence with those in respect of whom Dr. Nash and others have given evidence.

10333. MR. MANNING: Yes. It seems to me at the present stage that those cases must be considered apart from any statistical figures.

10334. DEPUTY-PRESIDENT: I would not say that I could attach any particular value to the evidence at this moment. I mean the evidence may have a value when it is reviewed and sifted.

10335. MR. MANNING: Yes. I was just thinking of it on general lines from time to time, and it occurred to me that unless you can see things like that in the true perspective they lose their value except for a limited purpose. For instance, those cases of lead-poisoning referred to by Dr. Nash would prove that there is lead-poisoning, and that it occurs amongst painters, and that possibly the painters are aware of this fact and are dissatisfied, and things like that. The extent to which it would establish those things is another matter.

(Witness retired.)

10336. DEPUTY-PRESIDENT: You have raised an important question in your remarks, Mr. Manning, a question which has given the Board very considerable concern all through the inquiry. On the 20th July the Board determined to address this letter to the Railway Commissioners:

"The Board of Trade is now, in pursuance of a Ministerial reference, holding an inquiry upon the question whether white-lead as used in the painting industry is so injurious to painters and other workers engaged in such industry that its use in paints or pigments should be regulated, restricted, or prohibited. The scope of the inquiry is to be wide enough to enable the Board to report upon all incidental matters, such as may have to be considered by the Government when answering proposals for the prohibition by international agreement of the use of white-lead in paint, which have reached it from the third session of the International Labour Conference held in Geneva in April last.

"The Board has already had some valuable assistance from various officers of your Department, and hopes that because of the range and special character of your experience, as a great employer in this and other industries, you will be able to co-operate with it and the Department of Public Health, in conducting a clinical study of the existing state of health of the painters and painters' labourers now employed in your workshops in the metropolis.

"The Board's proposal is that three medical practitioners, one being the railway medical officer, the second an officer of the Department of Public Health, and the third a physician and scientist of repute to be nominated by parties appearing before the Board in the inquiry, should be authorised to make the study, and that the expenses of the work should be shared by the three interests and the Board. These expenses can only be estimated by the professional gentlemen to be concerned, but should not be excessive, because the undertaking, if mutually agreed upon, might be concluded within, say, three weeks. The results of a study so made should have extraordinary authority, and enable the Board and the Government to speak with comparative certainty upon the questions at issue.

"There is undoubtedly considerable unease or misgiving in industrial circles with respect to what are rightly or wrongly believed to be the effects of the use of white-leads in paints, and a great deal of advantage should accrue to all concerned from an authoritative moderation of contention in this regard.

"The Board trusts that it will have your favourable and early consideration of this communication."

I understand that the Railway Commissioners have replied to the President of the Board, whose deputy I am, in favourable terms. Whether the project can be carried through now depends only upon the question of costs and expenses. If the cost is such as can be met by the parties concerned, then I think, and my colleagues are with me, that the clinical study should be made.

10337. MR. CONNINGTON: It is the only real solution of your problem, Mr. Deputy-President; it is, the only way to solve the question of the effects of lead in New South Wales.

10338. DEPUTY-PRESIDENT: Well, it will throw a considerable amount of light on it. I do not think it will altogether solve the problem, but it will enable us to put the facts that we have already ascertained in a more or less true perspective, and it will add considerably to the facts that are available to the Board.

10339. MR. CONNINGTON: If it could be extended to the men in the industry apart from those employed by the Railway Commissioners—

10340. DEPUTY-PRESIDENT: How, Mr. Connington?

10341. MR. CONNINGTON: I do not know, but I say if it could be.

10342. DEPUTY-PRESIDENT: Theoretically it would be desirable that all painters should be examined, but practically it is not possible to make a clinical study of all men engaged in the painting industry.

10343. MR. CONNINGTON: It is difficult, I know.

10344. DEPUTY-PRESIDENT: That is why I do not suggest that the result of such a study will be conclusive in its character at all. We shall have to regard it as a study made of a select body of men, and it can only help us to put such facts so ascertained and other facts in a general sort of perspective. The Board does not want to have a nominee doctor engaged on the work. It merely suggests that the Department of Public Health, as the conservator of public health interests, should have one of its medical officers engaged in the work with the medical officer of the Railway Commissioners, and, we will say, Dr. Chapman. Whether you are prepared to accept Dr. Chapman or not, Mr. Connington, I do not know, but it is a matter of expense.

10345. MR. CONNINGTON: I personally cannot say anything on the question of Dr. Chapman. I have the highest respect for him, and I am quite satisfied with his evidence, but it is a question of how the Union may view Dr. Chapman, as he has already given evidence as it were for one of the parties before the inquiry. Unfortunately, other people may not see Dr. Chapman in the same light as Mr. O'Brien and I see him.

10346. DEPUTY-PRESIDENT: Unfortunately, as far as we know, there are only two men in Sydney who have made a special study of lead. I regard Dr. Chapman as a scientific witness—as a witness who has not studied the interests of any party. As a matter of fact the Board called him first, but did not examine him as a witness because the Board learned that he was to be called by one of the parties.

10347. MR. CONNINGTON: I quite agree with you in your remarks about Dr. Chapman. I recognise him as a scientific witness who would do the just thing. It may be that the union will not have the slightest objection to him, and as far as I am concerned, I will certainly advise them not to raise any objection.

10348. DEPUTY-PRESIDENT: If the union raises any objection that will be one strong reason why we should not proceed with the proposal.

10349. MR. CONNINGTON: I quite understand, but you see the position I am in.

10350. DEPUTY-PRESIDENT: I do; I quite understand your position.

10351. MR. MANNING: What is the latest date for sending in the report?

10352. DEPUTY-PRESIDENT: No time has been prescribed for the return of the report, but if the report is to be made available to the persons in conference in Geneva, it ought to be returned without delay.

10353. MR. MANNING: I may say that in the early stages of this inquiry we looked very favourably upon a suggestion of that kind. In fact I said so here when it was first mooted. I forget who mooted it but it was probably Mr. Connington. I was inclined to fall in with the suggestion, and on consultation with my clients they supported the attitude that I suggested myself. Then that staggering information came along from the Treasury—I mean those papers in regard to those individual cases—showing the alarming state of medical knowledge or ignorance on the subject, or diversity of opinion, or whatever it may be called; and then it seemed to us, viewing the thing merely on its merits, that it was a most impracticable thing because we would have to examine into every case. I have been in consultation with a number of experts representing various industries in Australia, and since then they have scattered again. They have gone back to their various places. One has gone to Queensland and the other to Victoria. I should have to get in touch with them again if there is any concrete proposal made at any time.

10354. DEPUTY-PRESIDENT: The Board would like you to regard the proposal in that letter as a concrete proposal. I will have copies of the letter made and will let you each have one. I want to say that our proposal really has taken into consideration the very objections that you have just voiced. The very alarming diversity of opinion with respect to the incidence of this disease on the part of medical practitioners causes us to suggest that something in the nature of a combined and scientifically-based opinion should alone be accepted as a guide. We are prepared, therefore, to accept one of your own scientists as a member of the combined medical body, and we think that with the assistance Dr. Chapman could give, as the result of his special work at Broken Hill, there should be no errors of diagnosis on the part of that medical body, or such errors as are unavoidable should not seriously affect the general results of the clinical survey.

10355. MR. CONNINGTON: The letter very much reflects our feeling as to the position for some time. In other words we thought that something like what the Board has suggested here was necessary in order that you might have some definite data on which to express your views with regard to the question before you. We still honestly feel that our people are suffering as the result of their employment, and we are prepared to render this Committee all the assistance we can to investigate or examine the members of the union. Mr. O'Brien tells me that the union has approved of giving all the assistance that it can to bring the greatest number of men possible before any committee which may be appointed for the purposes of examination. But there is this little thing to be said: there may not be much in it, but there is something in it, and, after all, we are dealing with groups of individuals, and not simply with two individuals; we are dealing with great groups of people who do not think like individuals, but who feel. If the test is confined to the railways, and our offer is not accepted, I am afraid it will not be satisfactory to the union.

10356. DEPUTY-PRESIDENT: You have fifty men in the railway service.

10357. MR. CONNINGTON: Yes, but it is pointed out by Mr. O'Brien (and while there may not be much in it there is something in it), that before a man gets employment in the railway service he is already a sound man; he has to pass a doctor before he gets employment. I am not arguing about the test being made there.

10358. MR. ROUTLEY: They are not made permanent until they pass the doctor, is not that so?

10359. MR. CONNINGTON: No. I may be wrong, but I am of the opinion that they all passed the doctor. I am of the opinion that that is the evidence. I am not as definite on it as I might be, but that is the impression I have.

10360. DEPUTY-PRESIDENT: I am quite certain that a man is not tested in such a way as to indicate whether his kidneys are weak before he is given employment as a painter in the railway service.

10361. MR. CONNINGTON: I am not arguing against the railway people being submitted to the test. My union wishes that the railways should be tested. You may perhaps be able to satisfy yourself that there is not much in the point of examination, because it is not a thorough examination, but the average man does not look at things in that way. In any case, we could help you by giving you another 500 or 600 men. It will all depend upon how long it takes.

10362. DEPUTY-PRESIDENT: There is nothing like thoroughness in the performance of one's work and duties, but there comes a time when a certain degree of thoroughness makes the performance of any duties impossible.

10363. MR. CONNINGTON: I agree with you, and it may be so here. Still, it is proof of our sincerity, and we honestly think we have a case. I ask you, if you conduct the examination to accept our offer. Mr. O'Brien

tells me he knows a case of a man who would not be re-employed because his health had been bad.

10364. DEPUTY-PRESIDENT: Mr. Griffiths referred to a man who remained a temporary officer because he could not pass the examination. You put this question to Dr. O'Reilly, who is the Assistant Railway Medical Officer:—

“With regard to the health of the painters employed by your Department, a man employed in any work has to pass the doctor before he is engaged, has he not?—Yes, generally speaking.

A man to get work at all passes the doctor before he is employed?—Apart from casual workers.

Are you sure the casual painters, the man who is on the temporary staff, have not to pass the doctor?—I said a man is not employed longer than one month without passing the doctor. He has to do so then to continue his employment.

Can you get the report of the medical officer you referred to?—Which report is that?

I presume he keeps a record of the men who have come before him under that rule?—Yes.

You are quite sure they have not to pass a doctor before they commence work?—I am speaking subject to direction, but I think what I have said is the rule. Of course, in many cases they come before they do a tap of work, but that is the rule. You will understand that in the country they have to put on a man without, and he works perhaps some weeks——.

Take the metropolitan area?—It does not matter whether it is in the country or the metropolitan area, they all come to us for examination for employment.

Does the country porter—for instance, a boy put on in a country town as a probationary porter—present himself for examination in Sydney?—Yes, unless he belongs to Broken Hill or Lismore, where we have made arrangements for local doctors.

So that practically your experience is a direct, and not indirect experience through other doctors?—That is so.

10365-73. Mr. CONNINGTON: That seems to bear out the contention that the rule is to examine.

10374. DEPUTY-PRESIDENT: The case of George Henry Champion was referred to. I was examining the witness, and I had a blank certificate of medical health in my hand, and I asked Dr. O'Reilly:—

“Will you give us the effect of the record in that case?—He entered the service on 27th July, 1912, and that is the date the file shows he was passed for employment as a painter.

As a man in good health, satisfying the various tests with respect to vision, hearing, and general conditions of health?—Yes.”

Mr. Griffiths referred to a man being a temporary hand, and said: “That is probably due to the fact that he cannot pass the doctor; that is the reason he is temporary.” If I remember rightly, Dr. O'Reilly told us that the examination was more or less superficial.

10375. Mr. MANNING: Yes, that is my recollection.

10376. DEPUTY-PRESIDENT: I am not quite certain, but I have a recollection that I asked him whether there were tests for albumen, sugar, and various things.

10377. Mr. CONNINGTON: I do not think it is as thorough as that; but there is a test which the average man, who knows nothing about it, thinks is a convincing test. The union would not feel quite satisfied if it is confined to the railways.

10378. DEPUTY-PRESIDENT: Does it matter at all, if you have the man's industrial history? Supposing a man is absolutely sound when he enters the railway service at 21 years of age, and that he remains in the service for twenty years and is still sound?

10379. Mr. CONNINGTON: No, it would not matter in that case.

10380. DEPUTY-PRESIDENT: He may be a non-susceptible person. It is impossible to think that the Railway Commissioners, no matter what care they take, have a staff of non-susceptible persons.

10381. Mr. CONNINGTON: No, we are not suggesting that. What we suggest is, that whatever there is done in the first examination, they can be assumed to be healthy persons when they enter the Service. To the average man that means a lot, particularly when his interests are affected and when there is some test to be made. You are looking at it impartially, Mr. Deputy-President; but the painter thinks he has a grievance, and he is naturally inclined to be rather strict as to how a subject which he is up against is tested. If, for example, the union lent its assistance, it may be that they could carry on the examination sufficiently for your purposes and get through a large number of men in a day. If so, it would be much better for the Board, and more satisfying to us, if we could have the benefit of the committee's opinion of the state of health of the men whom we bring forward.

13382. DEPUTY-PRESIDENT: The advantages of having a study made of the persons in the employ of the Railway Commissioners are very great indeed. If we were to examine men who are in any other employ, a claim would be made on their behalf first of all for wages for time lost, and if we were to depend upon their selection by any authority other than the medical authority, very grave doubts might be cast upon the value of the study. If there is an arbitrary selection—a selection at random—of persons merely because they are to be found in a certain place, then the chance of getting persons of all particular degrees of health, and of particular degrees of experience, is very much greater than if the men were selected, say, by the union in good faith and sent up to the medical body for examination.

10383. Mr. CONNINGTON: Yes. However, you want to get at the truth. It is running in my mind that before ever this suggestion was made by you as to the examination being held in the railways, the evidence is that, at Randwick, for the last two or three years, 15 per cent. of the paint used is that classed as non-poisonous paint. A sort of enamel was mostly used, and for the roofs they used a mixture of different colour enamels.

10384. DEPUTY-PRESIDENT: I think we were told that the priming coats were always lead.

10385. Mr. CONNINGTON: I do not know that it is so. I think that at Randwick the evidence was that they largely discontinued the use of lead paint. You will recollect that the evidence is that at Eveleigh the roofs of the carriages have been done for the past two years with a composition.

10386. DEPUTY-PRESIDENT: And hundreds of carriages that have not been so done are coming in and are being stripped weekly—stripped of white lead an inch thick. Do not you see that the risk is in the stripping and not in the putting of it on when it is wet.

10387. Mr. CONNINGTON: Yes.

10388. DEPUTY-PRESIDENT: The carriages are being stripped in those workshops and the air of the workshops is being polluted with carbonate of lead now, and will continue to be so for a year or more to come.

10389. Mr. CONNINGTON: Have they not passed that stage?

10390. DEPUTY-PRESIDENT: No.

10391. Mr. CONNINGTON: The work on the roof is very rough. At one time there used to be three or four coats of lead, but recently I think he

said that the roofs of the carriages were very roughly done. You will remember him suggesting that a person was using an ordinary house broom.

10392. DEPUTY-PRESIDENT: I am talking about the breaking up of the old white-lead roof. They are using a new composition, but they do not put that on top of the white lead roof. In an inspection we made of the Eveleigh workshops we saw carriages with the roofs in the process of being stripped.

10393. Mr. CONNINGTON: Mr. O'Brien suggests that the stripping which you are referring to was not done by painters or painters' labourers, it was done by other labourers.

10394. DEPUTY-PRESIDENT: I think we have direct evidence on that. We do not regard what we saw as direct evidence in any way at all. We visited the workshops mainly for the purpose of seeing to what extent white-lead was used by persons other than painters. We walked through the paint shops and we saw the cars in preparation for painting, and in the process of being painted, and in the process of having their roofs stripped. We saw also that quite a considerable amount of white-lead was used in the engineering shops, by the wood-workers in the car-building shop. We were very much concerned, as a matter of fact, as to the probable risk that was incurred by the wood-workers, as apart from the painters, through the use of white-lead, and we learnt (it is not direct evidence) that the wood-workers are constantly using white and red-lead.

10395. Mr. CONNINGTON: That would be the carriage builders?

10396. DEPUTY-PRESIDENT: Yes, the carriage builders—the woodworkers. The question that exercised our mind was as to whether the comparison that we had asked for of the health conditions of woodworkers and painters might not be vitiated by the fact that the woodworkers were using a lead very freely and very constantly in their work. Well, they are using it freely and constantly, and we bear that in mind when we compare the condition of health of the two classes.

10397. Mr. CONNINGTON: Quite so. You hear our desire; I just press it on the Board, if the Board can feel its way to adopt it.

10398. DEPUTY-PRESIDENT: Lead is freely used at Randwick. F. Pardie says that "for the last twelve months we have used about 470 gallons of enamel, and for the last six months we have used 120 cwt. of lead. For the twelve months previously we used 154 cwt. of lead, that is 274 cwt. of lead in the last eighteen months." Mr. Routley points out that in the last six months they used 120 cwt., as against 154 cwt. for the preceding twelve months.

10399. Mr. CONNINGTON: I thought there was more non-poisonous material used there. However, there is the evidence.

10400. DEPUTY-PRESIDENT: We found, in the course of our inspection, that white-lead is handled very freely in the engineering shops, but not, of course, to the same extent that it is in the woodworking shops, and it is used and kneaded in the bare hand by the engineering worker.

10401. Mr. CONNINGTON: I think that they use the red-lead; that is to make the thing airtight and watertight. I did not know they used the white-lead.

10402. DEPUTY-PRESIDENT: They use white and red lead mixed.

10403. Mr. ROUTLEY: They were mixing a white-lead paste and a red-lead powder.

10404. Mr. CONNINGTON: I am instructed to say that we will be glad to give you all the assistance in our power, if the Government is prepared to extend it to the house section.

10405. Mr. MANNING: Do I understand that is the final suggestion, or is Mr. Connington going to consult his union about it?

10406. Mr. CONNINGTON: The union has been consulted on this question. You will remember it was mooted at an early stage of this inquiry, and Mr. O'Brien has placed the proposal before his executive, and it has been approved.

10407. Mr. MANNING: I mean the proposal is that there be a clinical examination conducted of the Railway employees.

10408. Mr. CONNINGTON: That only came before us this morning. We had in mind all employees.

10409. Mr. MANNING: What I want to get down to now, if I can, is what is the proposal. My clients are scattered about in various States at the present time, and I want to communicate with them, but it is no good my communicating with them unless I know exactly what Mr. Connington's suggestion is.

10410. DEPUTY-PRESIDENT: I think you had better take the suggestion of the Board. If you can both accept the suggestion of the Board, then the only question that remains to be answered is, at what expense the work can be carried out. If the expense is excessive we must do without the clinical study.

10411. Mr. CONNINGTON: We do not oppose any examination, but we wish it could be extended. That is our attitude in regard to the suggestion.

10412. DEPUTY-PRESIDENT: It will be a great pity if, after the effort that we have all put forward for the purpose of solving this problem some result of a conclusive character were not arrived at.

10413. Mr. CONNINGTON: I would like to see Mr. Flanagan's statements and some of the statements that have been made here investigated.

10414. Mr. MANNING: I have not had an opportunity of turning this over in my mind so far, but it has been brought home to me during the evidence that the bulk of the operative painters in connection with the Railways are coach and carriage painters.

10415. DEPUTY-PRESIDENT: They are, the great majority of them.

10416. Mr. MANNING: Of course, there are some permanent-way men who are house-painters. I do not know at present to what extent that will put the thing in proper perspective, or throw it out of perspective—the fact that the great majority of them are coach and carriage painters. There are so many other circumstances operating there.

10417. DEPUTY-PRESIDENT: We have to deal with the factory painting class. Painters generally come within the ambit of the references.

10418. Mr. MANNING: Yes. It will be a rather lengthy and expensive investigation, and one question we would have to consider is whether it would be justified for the partial result achieved.

10419. DEPUTY-PRESIDENT: Quite so. We are none of us committed to it. If you accept the proposal in theory, we are none of us committed to it, because the expense has to be borne by somebody, and the proposal is that we should share the expense, and it may be that the Board may not be able to bear its share of the expense.

10420. Mr. CONNINGTON: None of us may be able to bear the expense.

10421. Mr. MANNING: I was thinking of the result to be achieved, and I would like to consider it a little more and discuss it with some of my clients. One thing that does occur to me at the present moment is that the result obtained will be certainly only partial. Whether it will be sufficiently great to justify our embarking on the enterprise is another matter.

10422. DEPUTY-PRESIDENT: The greatest benefit that we can hope to obtain from the clinical study will be a means of putting the whole of the evidence that we have got into some more correct perspective than we could otherwise procure for ourselves.

10423. Mr. MANNING: Do you mean the whole of the coach and carriage painters?

10424. DEPUTY-PRESIDENT: We will examine both classes; we would examine the house-painters in the Railway service; although they will be only fifty strong, we will still get from a study of their clinical conditions help to enable us to put a good deal of the evidence that we have obtained with respect to the house-painters into a more or less correct perspective.

10425. Mr. MANNING: What would be the real effect of the result in comparison, for instance, with the Water and Sewerage Board and Cockatoo Island? I mean, would it have any relation to the evidence which has been given in respect of those?

10426. DEPUTY-PRESIDENT: I think it would help us to attach a value to the evidence from each one of the other great workshops. For instance, the evidence from the Water and Sewerage Board has reference to only half a dozen men. It is wholly negative, and it is evidence that is given by a medical officer who has the best means of determining what is the condition of health of the employee. It should be evidence of importance. It will acquire an added importance if it is found that the clinical study in the Railway workshops shows negative results.

10427. Mr. MANNING: I am only asking these questions so that I can discuss it with my clients if we have a consultation. They may come over here on a thing like that. The same would apply, I suppose, in its relation to the evidence given by Cockatoo Island?

10428. DEPUTY-PRESIDENT: I think so. Mr. Connington suggests that the examinations there are more formal than real and substantial.

10429. Mr. CONNINGTON: I would very much like there, if we could, to get the medical committee to investigate the conditions of the men at Cockatoo. I think that could be done handily. When there are painters there we would like to have them examined by the committee.

10430. DEPUTY-PRESIDENT: The criticism that Mr. Connington directs to that examination will have less importance to our minds, I think, if the evidence given with regard to the health conditions at Cockatoo is supported by evidence that can be given as the result of a clinical study of the health conditions at Eveleigh.

10431. Mr. MANNING: Then would the Board extend the examination in the way Mr. Connington suggests?

10432. DEPUTY-PRESIDENT: Oh, no; it would never come to an end at all then.

10433. Mr. CONNINGTON: It is for the Board to say, but with regard to the medical evidence from Cockatoo, in the light of the testimony of the men themselves, I do not think the weight can be given to it which might otherwise be given to it. You can put it to what test you like, but I am forced to the opinion that the examination at Cockatoo is very casual indeed.

10434. Mr. MANNING: What has that to do with this question? Do you suggest there should be a further examination at Cockatoo, or do you agree with what the Board suggests?

10435. DEPUTY-PRESIDENT: Mr. Connington has made that suggestion, but the Board feels that it has gone as far as it possibly can go in the way of making health tests by a medical committee when it carries out this proposal which is contained in this letter to the Railway Commissioners.

10436. Mr. CONNINGTON: I suggest that it should be extended in that way, and it certainly follows that it should be extended to Cockatoo. I am for extension all the time.

10437. DEPUTY-PRESIDENT: The proposal is that contained in the letter from the Board to the Railway Commissioners.

10438. Mr. MANNING: I will communicate with my people on the matter. I cannot deal with it now, because they are away at present. Some of our men are here, and I will discuss it with them, but I cannot say anything definite until we have the replies from the gentlemen in Queensland and

Victoria. Mr. Rigg and Mr. Sievier will certainly have to be communicated with.

10439. DEPUTY-PRESIDENT: I think that the first thing we might do tentatively is to find out what the study would cost, and I think for that purpose it might be possible to bring together Dr. Chapman or Dr. Smith, Dr. Armstrong of the Health Department, and Dr. Watson of the Railway Department. They might indicate what will be the cost of carrying out the survey proposed. Then, if you have that information you can submit to those who are instructing you quite a definite and complete proposition.

10440. Mr. MANNING: Yes. The reason why I am asking all these questions now is that I do not want to have a letter written to them and get a reply asking about this, that, and the other. I want to make it as complete as possible. I have one witness whom I wish to call.

JOHN ANTHONY YOUNG, sworn, examined by Mr. MANNING:—

10441. What are you?—Director of Lewis Berger and Sons (Australia), Limited.

10442. How long have you been with Lewis Berger and Sons, Limited?—About fifteen years.

10443. During that time what were your duties?—I joined them in London originally as correspondence clerk, and whilst there I had the investigation of complaints and technical details and trade matters from all over the world in the export department. I came out here in 1911, and my experience here extends to selling and travelling on the road, and inside management generally after a while.

10444. So we may take it that you are familiar with all the departments in your particular business?—Yes.

10445. You have endeavoured to secure some practical examples of the relative values of lead as against other pigments?—Yes. It occurred to me that the evidence given before the Board would be strengthened or confirmed one way or the other by an example of some panels and absolute tests which had been made. Unfortunately those were not so complete as we would have liked to have had them, but I had to make the best of the material we had.

10446. Look at Exhibit 27; do you produce that as one of the tests you made?—Yes. This was part of a panel painted about twelve months ago with a pure zinc-oxide paint.

10447. What was the size of the panel?—The size of this one was about 18 inches or 2 feet long.

10448. And the width?—Much about as you see it here.

10449. That is about 6 inches?—Yes. This was only done about twelve months ago.

10450. Do you also produce Exhibit 28?—Yes.

10451. What does that represent?—This is a portion of a thicker panel, with part of the thickness taken off, treated with white-lead in October, 1917.

10452. That is just the veneer taken off?—It is not the veneer, it has been stripped off. It was about a three-quarter inch board.

10453. There is no significance attached to the thinness of the wood?—No.

10454. DEPUTY-PRESIDENT: Whose white-lead is put on to it?—I could not say. It was during the months we produced our first quantities of lead, and they were tried out in conjunction with various imported grades. We had a series of about seven brands, including our own. The record was kept, but the chemist who did the work and who had it done is in England, and his desk has been shifted about so many times that we cannot put our finger on the record; but I do know that that is one of the series of seven white-lead panels.

10455. Mr. MANNING: You have examined it through the microscope?—Yes.

10456. At any rate, knowing it was a white-lead panel, and comparing it with the zinc oxide panel, will you tell the Board the difference in the comparison that you see?—In the case of the white-lead the surface has been attacked badly; the oil has dried out very largely, and the disintegration has commenced. It is what we call chalking in the trade, and a certain amount of powdering. The value attached to this exhibit is that the paint film has not entirely decomposed, and although it is so light there is a good surface on there, and, what you might call the oxidisation, has not gone right through to the timber.

10457. DEPUTY-PRESIDENT: Decomposition would be a better term, would it not?—Yes. The surface seems to be like a snow bed on which you have had a little traffic. It is just a shapeless mass underneath. That proves that the lead has maintained its characteristic, and held its tooth or its ground upon the surface upon which it has been applied.

10458. Is that surface in a condition of chalkiness?—Yes, but not to any great extent. It has been handled rather a lot since yesterday. Nevertheless it is chalky.

10459. Mr. MANNING: Comparing it with Exhibit 27, what features about Exhibit 27 do you draw attention to as indicating a proper comparison to make?—To the fact that after such a short exposure the cracking extends right away throughout the board, and that it is penetrating, so far as we can tell, right through to the timber. That is the commencement of a process which always takes place with a zinc oxide paint.

10460. Have you any doubt in your own mind as to whether that penetration goes through to the timber?—To be honest, I should say that I have, because it is very hard to distinguish. You see, it has only had a twelve months' exposure to begin with.

10461. You say you cannot say whether it actually goes through to the timber?—I would not be too sure about that, but it has that appearance anyhow. If we were to leave that outside for another twelve months we would probably find that there were gaping holes in it, and that it was peeling off.

10462. DEPUTY-PRESIDENT: Whose oxide was that?—This was made at our own works. The zinc oxide itself was not made there. We buy the zinc oxide itself from one of the zinc oxide manufacturers, but the paste was manufactured at our own works.

10463. Mr. MANNING: Do you produce a photograph showing zinc oxide results?—Yes. I produce a photograph of a cottage at Roseville, and two small photographs of portions of the gate magnified considerably. It confirms the action which started here. That is not a pure zinc oxide paint, however; it was a mixture of zinc oxide and byrites.

10464. DEPUTY-PRESIDENT: Is this a micro photograph?—Yes.

10465. It is from the original?—Yes.

10466. It is not reproduced from the other?—I do not think so, but I would not be sure of that; Mr. Bishop attended to that. That was the intention, I understand.

10467. Was the photograph of the cottage taken when the cottage was newly painted?—No. I understand that has been done about two years.

10468. What is the character of this paint?—That is a zinc oxide and barytes and a very little lead.

10469. What percentage of lead?—Thirteen per cent. of the dry pigment, 29 per cent. of zinc oxide, and 57 per cent. of barium. The lead was not sufficient to hold the other particles together by any means.

10470. What do you regard as a sufficient substratum of lead?—At least 60 per cent.

10471. Not less than 60 per cent. of lead?—Not less than that.

10472. Do you know by whom this paint was applied?—No. We had the scrapings analysed.

10473. Did you supply the paint?—No.

10474. Do you know whose paint it was?—No. The scrapings were analysed by an independent man—Francis Walsh, of Hamilton-street.

[*Three photographs of cottage at Roseville put in and marked Exhibit No. 30.*]

10475. Mr. MANNING: To what reason do you assign this difference in the character of the two paints?—In the first place, the white-lead has such a remarkable affinity for linseed oil. Each little particle of lead as it is ground will absorb oil. The particles of lead are angular, and they knit very closely together. Linseed oil as a film over an outside surface is not sufficient to resist the weather, and it must be reinforced with some pigment that will lie very closely together, and lead, in my opinion, will do that.

10476. You say it is due to the angular shape of the particles?—Yes, because the little particles possess a certain amount of tooth which the smooth particles do not possess.

10477. That is illustrated by a chemical examination?—Yes.

10478. For instance, in sea-beach sand and globular particles a chemical result is shown if you pour water on them?—That I could not say. A good example with which the Board will be familiar with regard to the affinity of the lead for oil is in the pulping process. In the big pulper there is at one stage lead, oil, and water, and as the lead works its way down it takes the oil with it. Each little particle of lead will take its little drop of oil, and will gradually work in the water to the top. When it is painted on the surface of a wall it really takes the form of oleanated lead, and each little particle of lead clings to the oil. In time that will oxidise, I suppose, but at the same time the lead still retains its tenacity to the timber or to the work upon which it is painted.

10479. DEPUTY-PRESIDENT: Do you suggest that the particles of zinc oxide are crystalline in their character, whereas the particles of lead are non-crystalline?—I would not say that the particles of zinc oxide are crystalline, but it is generally accepted—in fact, Cruickshank Smith is one of the foremost men in chemistry in Great Britain, and he declared that zinc oxide merely takes upon itself the form of a mixture and remains in suspension, whereas the lead identifies with the oil at once and takes it in. That is the essential difference between the two.

10480. Is it what they call absorption?—I have not heard that term. It may be so. The white-lead saponifies it. In the case of the lead it is absorption.

10481. Mr. MANNING: It is probably both. It is absorbed, according to this witness, and the shape of the particles has that peculiar effect that the oil takes it to the surface and keeps it there. The absorption, I suppose, is the relation of the oil to the lead which has absorbed its full quantity of oil.

10482. DEPUTY-PRESIDENT: It is really the term that might have been used to indicate what Mr. Young has described—the gathering of the particles of lead with a coat of oil. Each particle of lead attracts to itself and all about it its film of oil.

10483. WITNESS: That is so.

10484. Mr. MANNING: What about the capacity of the two points?—Unquestionably the white-lead film has a greater capacity than any other substance. I can quote here two independent authorities. Sabien, who is a very well-known and renowned man in the States in America, gives as the result of his own investigation the statement that two coats of lead equal three to four coats of zinc. Lambert says that three coats of lead are equal to five

of zinc. We know there is a manufacture of our paints, when we are producing certain specialties, if a material is wanted to consist largely of zinc, unless it is fortified with lead it has no body.

10485. What would be the percentage of pigment in a gallon of lead paint ready for use?—A gallon of lead paint ready for use to put on with the brush would represent about 78 per cent. of pigment and 22 per cent of oil, the medium.

10486. DEPUTY-PRESIDENT: By pigment you mean paste?—Yes, that is pure white-lead.

10487. Mr. MANNING: Look at Exhibit No. 27. What in your opinion caused that cracking to set up?—In the first place the lack of absorption of the oil by the zinc oxide. That is the great thing. As the oil oxidises, not only does the oil oxidise, but it is followed by a further oxidation of the zinc. Then, again, if a film of zinc oxide paint freshly applied were so examined as to reveal its constituent parts it would be found that the little round particles would leave little gangways or openings all the way round here and there. That is what has happened here.

10488. DEPUTY-PRESIDENT: That is, the particles are not linked together as in the case of lead?—That is so.

10489. Mr. MANNING: Is there less pigment in that than in the lead paint?—Yes, per square yard of surface.

10490. Mr. CONNINGTON: There is a fine gloss on that, is there not?—Yes, a beautiful gloss.

10491. Mr. MANNING: What is the percentage of pigment in a gallon of zinc paint?—About 56 per cent. For every surface that is painted with a zinc oxide you have less pigment in the oil than you would have in the case of lead.

10492. You have given the comparison of the two as to opacity?—Yes. It will be readily understood that, although particle for particle zinc oxide may have a similar tenacity and opacity to that of lead, the paint film containing less of the pigment it cannot cover so much. It cannot screen or hide in the same proportion as white-lead.

10493. Mr. CONNINGTON: Then it would be a good thing for you to take up that challenge that the Zinolin people put forward; it will be a great advertisement for you?—If you took notice of all that the manufacturers of various paint specialties say you would not know where to begin or where to leave off.

10494. Mr. MANNING: Has not zinc a similar influence on linseed oil as lead?—No. Lead saponifies and the zinc does not.

10495. Have you had any experience with lead sulphate?—Yes, we have endeavoured to use lead sulphate on one or two occasions. A company was formed in Tasmania some two years ago to make lead sulphate, and one of their officials came across to see us at a time when our own lead output was short and we were looking for some pigment to use in the manufacture of our paints. We consented to have a shipment—I forget whether it was 5 or 20 tons of lead sulphate which came across, but we have not been able to use it yet. It is crystalline, semi-transparent, and a bad colour, and it is waiting there to be taken away.

10496. DEPUTY-PRESIDENT: Have you ever used antimony?—No.

10497. Have you had any experience of the use of antimony?—None, whatever, beyond a test of a sample which was submitted to us by the company for whom the witness was speaking yesterday. They suggested that we might take it up and find it a suitable pigment. We tried it out, but to begin with it was three weeks drying, which rather confirms yesterday's evidence that it was a slow drier. Were we to add sufficient driers to bring it to the value of lead in respect of that quantity it would mean

creating a too brittle film. It would shorten the linseed oil considerably, so that it would crack in a very little while. That was our opinion. We have not been able to use it, and we would not think of using it.

10498. When zinc is compounded with varnish what is its life?—The varnish certainly prolongs its life.

10499. How does its life compare, then, with the life of white-lead paint?—It would be impossible to make a direct statement on that because it would depend entirely upon the gums used in the varnish. It may be a quick-drying composition with which the zinc would be ground, and it would go off very speedily. Instead of cracking, as it has here, it would probably have the appearance of frosting on the surface, and then the disintegration, as shown in the microscopic examination, would commence.

10500. What is the comparative life of a pure varnish with a pure white-lead paint?—There again it all depends on what class of varnish you use. If you take an ordinary class of oak varnish it may go off in twelve months. On the other hand, a surface which was built up for carriage work or motor work may last for two or three years before it loses its brilliance or gloss. It would have to be very good to do that.

10501. So that ordinarily one may infer that the life of a white-lead paint is much greater than the life of any varnish at all?—For house-painting and for outside work, yes. Even if a white-lead surface were used with varnish it would increase the troubles of the painter when he came to repaint, because he would have the cracked film on the top of the varnish line to cope with before he even touched his lead.

10502. Could not paint be applied on top of the cracked film of varnish?—No, because once that cracking commences it continues, and if you cover it with another coat of paint it simply takes the fresh coat of paint with it.

10503. Are all enamel surfaces then burnt off before they are re-enamelled or re-painted?—Either burnt-off or rubbed right down almost to the wood—rubbed down until they reach a smooth level, as a rule, with pumice or sand-paper, as the case may be.

10504. When does a good white-lead paint commence to powder or to chalk?—That would vary considerably. Sometimes it may be within six months, and sometimes within eighteen months and sometimes two years. It depends on the operator. One man in his work will apply two or three coats of lead straight on end without varying the medium at all; another man, if he is careful, may work it up so that his last coat will carry a little more oil, and then he has his undercoats to fortify him. It is impossible to lay down a definite rule with regard to that, because six men handling a job may make a different job of it with the same material.

10505. In fact, the process of painting, which is designed to preserve, is a process which aims at preserving by the medium of oil in the main, is it not? Are not the other paint bases really the means of extending the covering power of the oil? Is not the oil the real preservative and the real paint?—Of course, the oil is naturally of great importance, but I do not know whether it can be stated by anybody that the whole object of painting or protecting was the film of oil, and that the pigments came as a secondary consideration. I would not like to say that.

10506. Does white lead, after it has commenced to chalk, throw off, for instance, the moisture that is applied to the surface by rain or dews or by the atmosphere?—Yes, it will oxidise very rapidly, whereas with some of the more inert pigments the danger of the use of such is that once that cracking has commenced the moisture gets behind the cracks.

10507. Does not the chalking white-lead absorb the moisture and hold it against the surface until it has dried out again?—I do not know whether it would at all. My impression is that it would not. On one occasion I was

examining some white-lead particles in water, and I found under the microscope that around each little particle of lead there appeared to be a little globular air bubble. It sort of resists the water.

(Witness retired.)

10508. Mr. MANNING: That is the only witness I have to call. That concludes my evidence.

JAMES O'BRIEN, previously sworn, examined by Mr. CONNINGTON:—

10509. You have taken out a list of the members of the union who have resigned since 1914?—Yes.

10510. For the whole of the period since 1914?—I will have to describe it to the Board. There were two unions in 1914—the Amalgamated and the Operatives. The Amalgamated was the largest and contained 1,300 or 1,400 members. There is no record from 1914 until the amalgamation in 1919 of one branch. The amalgamation took place in September, 1919, so that the figures are absolutely correct from 1919. The Operative section is correct from 1914. The records are absolutely correct for that one section.

10511. DEPUTY-PRESIDENT: Which was the most numerous body?—The Amalgamated. The other in 1914 had only about 250 members, and in 1919 they were about 650.

10512. Mr. CONNINGTON: What do the lists total?—196.

10513. DEPUTY-PRESIDENT: How many members are there in the Amalgamated Union?—There is only one union now. In 1914, on the book from which I got these figures, there were 1,308.

10514. That is in 1914. How many members were there in each union at the time of their combination in 1919?—In the Amalgamated there were 1,000 and in the Operative there were sixty-four.

10515. How many members are there in the union now?—There are over 2,000 names in the book, but there are only 1,550 whom we have addresses of and whom we are in touch with, so we merely claim 1,550 members.

10516. Mr. COOPER: 1,550 financial members?—Yes.

10517. Mr. MANNING: Do you recollect, Mr. Deputy-President, how this arose?

10518. DEPUTY-PRESIDENT: I asked the union if it could indicate from its records the frequency with which men dropped out of actual work because of illness or from any cause at all.

10519. Mr. MANNING: And these are resignations from the union.

10520. DEPUTY-PRESIDENT: The record cannot be of any value until 1919.

10521. Until 1919 men must have resigned from one union in order to join the other?—That is so. Quite a number did.

10522. Mr. MANNING: And I suppose in 1919 they would be in a different trade?—Yes, some of them would. They get a clearance from one union to the other; when they leave the trade they get a clearance to go to the union of the calling which they are following. Others get a clearance from State to State.

10523. DEPUTY-PRESIDENT: Then again, where there are industrial unions as distinct from trade-unions, they get a clearance in order that they may join the union for the industry?—That is so.

10524. There are certain places called by Judge Heydon islands of industry, such as the Portland industry. Presumably, if they have a dozen painters engaged upon repair and maintenance work there those painters will be members of the union at the works. The steel works at Newcastle is, I think, in the same position, is it not?

10525. WITNESS: Yes. The same applies to the City Council.

10526. MR. CONNINGTON: Is that so. I have some knowledge of this matter, and I do not think that is so. The Boilermakers' Union, the Engineers' Association, the iron works assistants, and the engine-drivers all have their members working at the steel works and at the Sulphide Corporation. They may get the one award for the industry, but so far as the membership in unions of employees is concerned quite a number of unions cover those enterprises. I know that.

10527. DEPUTY-PRESIDENT: They cannot protect their members then by application to the tribunals.

10528. MR. CONNINGTON: I think so.

10529. DEPUTY-PRESIDENT: For instance, the Painters' Union could not make an application to the Industrial Court for an award for the painters engaged in the Steel Works at Newcastle. The application would have to be made by the Steel Works Employees' Union.

10530. MR. CONNINGTON: I cannot answer that definitely, but I do know that they have their members in those places.

10531. DEPUTY-PRESIDENT: What about the coal mines?

10532. MR. CONNINGTON: The same thing applies to the coal mines.

10533. DEPUTY-PRESIDENT: And the Colliery Mechanics' Union.

10534. MR. CONNINGTON: That covers a large number; but a good number of men, such as boilermakers, engineers, engine-drivers, and so on, are members of their crafts at present.

10535. DEPUTY-PRESIDENT: As well as members of the other unions.

10536. MR. CONNINGTON: I am not sure of that. You will recollect reading, a little time ago, that there was very nearly a strike because the miners tried to force some engineers to join their union.

10537. DEPUTY-PRESIDENT: I know the Colliery Employees' Federation has demanded that the members of the Colliery Mechanics' Union shall join their body. But the Colliery Mechanics' Union has always included all classes of tradesmen.

10538. MR. CONNINGTON: Quite apart from that, the engineers, engine-drivers, and boilermakers have members and, I am sure, look after their interests.

10539. DEPUTY-PRESIDENT: However, the conversation that has taken place between us indicates that there may be very many reasons why persons should resign or be cleared from the Painters' Union other than reasons arising from their health.

10540. MR. CONNINGTON: Of course, I am not forcing anything on that point.

10541. DEPUTY-PRESIDENT: Can you help us to interpret it in some useful way?

10542. MR. CONNINGTON: I think Mr. O'Brien would be best able to do that.

10543. As a union secretary, what is your explanation for these men resigning from your union?—There are so many various reasons it is difficult to answer that question.

10544. Would there be many of them resign because they were going to leave the industry altogether?—Yes. There were sixteen letters I brought here, and you have them now, within the last six months from men who have stated in the letters that they are resigning from the trade to take up occupations away from the painting. One or two resigned owing to health reasons, and one or two said the doctors had ordered them away from the trade.

10545. What percentage of the cases—?—I cannot say that.

10546. DEPUTY-PRESIDENT: We raised this question, I think, when considering the value of Mr. Sawkins' evidence. The question was whether the Statistician was likely to have recorded the deaths of all persons who had

been mainly, in the course of their active industrial lives, engaged in painting work; whether the painter might not lose his trade association shortly before his death and be recorded as a labourer in his death certificate?

10547. Mr. MANNING: I remember Mr. Sawkins raised that point himself.

10548. Mr. CONNINGTON: However, you have sixteen cases of men within the last six months?—Yes.

10549. Mr. MANNING: What he said was, I think:—

“There would be a very considerable risk that his occupation would be misreported?—Yes, I think so. That a large number of the deaths occur in public institutions. Perhaps they do make careful inquiry as to what has been the main occupation of the man.”

Then this occurs:

“What explanation suggests itself to your mind in connection with that apparent conflict?—I find it very difficult indeed to explain it. Of course, that way of putting things. ‘Excess of deaths in every thousand ascribed to the influence of lead,’ means that the relative frequency of death from those things is just fifteen per 100, or 150 per 1,000 greater in one case than in the other. Certainly those figures do not point to a vastly higher absolute death-rate in the case of painters and glaziers than in the general population.

“Does it not suggest to your mind that there may be some alteration in the designation of a painter at the time when his death certificate is prepared?—It might possibly be so.

“Would it be accounted for in this way: If a painter’s health was so affected that, towards his death it would be necessary for him to refrain from following his occupation, and his classification therefor would become a little less definite than it would be if he died in harness, would not that account to some extent for the general death-rate being in conflict with the particular inferences that you have been able to draw with regard to specific diseases?—I do not know that it would. It is a very difficult point.”

Then he goes on to establish that he is right about that and there is nothing very peculiar about it, by reference to some other figures which he prepared—I forget just what they are.

10550. DEPUTY-PRESIDENT: I have no doubt men in all occupations tend to lose their occupational classification to some extent.

10551. Mr. CONNINGTON: I think it would be greater here. My recollection of the evidence tendered is that the doctors advise that once a man is found to be poisoned by lead he is told to seek other employment. That is the general class of evidence given here by medical men. I think I can reasonably ask the Board to infer that where a doctor found a man was susceptible to lead-poisoning or to the ill effects of lead he would suggest, “Get out of this job and go into another one away from paint.” I think the inferences in regard to painters in that direction would be greater than in the case of the carpenter, plumber, or bricklayer. The Board will recollect the evidence of Dr. Nash and, I think I can say, the whole of the evidence.

10552. Mr. MANNING: What has that to do with these figures?

10553. Mr. CONNINGTON: It has something to do with the question raised by the Deputy-President. He said he had no doubt every industry lost their industrial identity from the standpoint of the Statistician.

10554. DEPUTY-PRESIDENT: I have no doubt that doctors advise men in all industries from time to time that it would be advisable for them to change their occupation.

10555. Mr. CONNINGTON: I think that would be the exception. There has been no suggestion here, from the medical evidence, that there is anything in the occupation of a bricklayer, say, which justifies the doctor in telling

him to try another occupation. He might become physically weak, or something of that sort, and might be told the job is too heavy and to try something light; but the suggestion here is the occupation of a painter is such that persons susceptible to lead-poisoning ought not to continue in the industry—that those who have been affected should for the sake of future health get out of it altogether. I think I can fairly say the inference in this trade is stronger than in the case of any other.

10556. DEPUTY-PRESIDENT: That is, if you assume the same proportion of men are affected.

10557. Mr. CONNINGTON: Or susceptible to it; and the doctors generally take the view expressed by Professor Chapman yesterday. I think, without presuming to press the point further than is fair, I can say the average doctor seeing signs of anæmia—

10558. Mr. MANNING: It all boils down to this: Mr. Connington need not bother to apologise for not asking the witness further questions.

10559. Mr. CONNINGTON: It is a matter entirely raised by yourself, Mr. Deputy-President, and I am endeavouring to answer it in the best way I can.

10560. DEPUTY-PRESIDENT: That being so, as you put it in the course of your explanation, can the witness show the Board what men resigned because of doctors' advice to change occupations?

10561. Mr. CONNINGTON: The witness did not raise this point; we raised it amongst ourselves.

10562. Can you assist the Board by information as to the percentage of names on that list of men who have left the union for health reasons or any other specific reason?—No, I cannot do that.

10563. All you can say is that sixteen men have left in the last six months?—All I can say is that where you see a suspension granted that man has left the trade. He has no right to suspension for any other reason. Where there is "resignation" or "clearance" I cannot explain it.

10564. And no inference can be drawn from the mere fact a man has resigned?—No.

10565. Mr. CONNINGTON: I wish to put in a certificate from Dr. Nash in his official capacity, not a certifying surgeon. We have already the twenty or more that he gave evidence of himself when, as certifying surgeon, he gave certificates.

10566. This certificate I have here he issued in his private capacity to a member of your union?—Yes.

10567. DEPUTY-PRESIDENT: We did not want to make a formal exhibit of it. Perhaps Mr. O'Brien can say that he holds a certificate from Dr. Nash to the effect that Mr. James Hughes (a member of Mr. O'Brien's union) was, on 21st October, 1920, found to be suffering from chronic lead-poisoning.

10568. Mr. CONNINGTON: That is quite sufficient, and it would be more convenient.

10569. Do you recollect a list of about forty names extracted from the returns put in by us, which was prepared by Mr. Woodham?—Yes.

10570. You were asked whether we could get the consent of the men whose names were on the list with a view to communicating with the doctors. Have you communicated with those men?—Yes. I have received nine letters in reply, and fourteen men have called upon me and given their permission verbally.

10571. DEPUTY-PRESIDENT: That is quite a small proportion of the number of men whose names appear on the list.

10572. Mr. CONNINGTON: The original list contained 120 names, in round figures. From that 120, Mr. Woodham extracted forty names or thereabouts; and this is twenty-three of forty, not of 120.

10573. DEPUTY-PRESIDENT: I take it if we agree to the clinical survey that the Board has proposed to the Railway Commissioners it will not be necessary for us to pursue this other matter?

10574. MR. CONNINGTON: As you were saying this morning, you do not know what value any evidence will have until such time as you are reviewing the whole of the evidence.

10575. DEPUTY-PRESIDENT: If we were to subpoena Dr. Phipps, of Mosman (taking the first name on the list), to give evidence with regard to the state of health of Gustavus Visa, who was found to be suffering from lead-poisoning ten years ago—

10576. WITNESS: No, he is suffering now; he has been suffering in that ten years.

10577. DEPUTY-PRESIDENT: Has he remained under the charge of Dr. Phipps for ten years?—He has. I have a letter from him.

10578. DEPUTY-PRESIDENT: Suppose a man were certified ten years ago to be suffering from lead-poisoning, the doctor may not have a record of it. We may bring that doctor here and he may say, "I am sorry, but I have no recollection or record of the case."

10579. MR. CONNINGTON: My impression was a short-cut would be taken; that the Board would communicate with these doctors asking each individual doctor if he recollected a certain case and whether it was a fact, as alleged by the person signing our sheet, that he had at some time or other been certified by that particular doctor as suffering from lead-poisoning, mentioning that the Board had the man's permission to ask the question. Probably it was never intended, when Mr. O'Brien asked for the authority of the men, that you should seek out all the doctors and examine them. Then it was suggested that if we wrote to the doctor he might feel he was not in a position to give information because he would be betraying the confidence of his client. A letter might be of some use to the Board. It would certainly mean some verification of our allegations.

10580. DEPUTY-PRESIDENT: A letter could not be accepted as evidence, without cross-examination. We have learned from the scientific medical witnesses that diagnosis is frequently loose and inexact.

10581. MR. CONNINGTON: You cannot decide between medical men.

10582. DEPUTY-PRESIDENT: It is because we have been warned to that effect that Mr. Manning no doubt would be extremely anxious to see the doctor and question him with regard to the method and effect of his diagnosis in each case.

10583. MR. CONNINGTON: You have read the report of the Painting Commission in England, and there the evidence taken was of a general class which the Parliamentary Committee acted upon.

10584. DEPUTY-PRESIDENT: But you are not suggesting they took evidence of health on the Commission without having the doctors before them?

10585. MR. CONNINGTON: They had before them the secretary of the Painters' Union, and he made a general statement as to what, in his opinion, was the health of the men.

10586. DEPUTY-PRESIDENT: And he gives the names of the men who are ill?

10587. MR. CONNINGTON: It does not set that out in the summary of evidence.

10588. DEPUTY-PRESIDENT: It is not a summary; it is a verbatim report. There is a summary in the report, but I have the evidence.

10589. MR. CONNINGTON: I am speaking of the report with regard to coaches, &c.

10590. DEPUTY-PRESIDENT: I have here the evidence taken by the Departmental Committee upon which was based the report on the use of paints

containing lead in the painting of buildings—evidence taken in the same way as in this case.

10591. MR. CONNINGTON: The report I refer to dealt with lead paints used in painting, enamelling, and varnishing coaches and carriages.

10592. DEPUTY-PRESIDENT: The reports in each case contained summaries of the evidence given.

10593. MR. CONNINGTON: There we find the evidence given is of a most general character. However, Mr. Deputy-President, you can see we honestly believe that there is a considerable amount of lead-poisoning around us, and we press that our statements be checked in every way. We cannot say more than that. Our *bona fides* cannot be questioned. There are the names of the men, and they give their authority for the doctors to speak. If a doctor said, "I did certify that Jones suffered from lead-poisoning," that would be evidence. I do not know that the doctors who have given evidence here know any more about the matter than a doctor at Mosman or anywhere else.

10594. DEPUTY-PRESIDENT: All I can say is that if nine men give in writing their consent that the doctor should disclose the effect of his work upon them, if an inquiry is made it will be made by Mr. Woodham, and any information gained will not be communicated to the Board unless it is communicated publicly. The plan will be tested, to see if it is feasible.

10595. MR. CONNINGTON: We do not mind if the Board tests the whole of the twenty-three names. We want you to test all our statements put before you.

10596. DEPUTY-PRESIDENT: I will not take the letters produced by Mr. O'Brien as an exhibit, but he may be good enough to leave them with us.

10597. MR. CONNINGTON: It will appear in the notes that you asked Mr. O'Brien if he could get the consent of the men. I would like to say now that he has brought along—

10598. DEPUTY-PRESIDENT: I have no doubt Mr. O'Brien has been at considerable pains to get us the evidence.

10599. MR. CONNINGTON: We have half a dozen more sheets with regard to men who state that doctors have certified they suffered from lead-poisoning. The whole of the particulars will be found, as in the other case, on these sheets.

10600. DEPUTY-PRESIDENT: But the Board did not admit an exhibit in that connection, did it?

10601. MR. CONNINGTON: No, but we put in a list.

10602. DEPUTY-PRESIDENT: And these are to be added to the 120 names. How many are there to be added?

10603. MR. CONNINGTON: Five more.

10604. DEPUTY-PRESIDENT: That will be 126 in the group to which you have referred in the course of your examination.

10605. MR. CONNINGTON: I have checked the evidence of Dr. Roberts and that of Mr. Shearman from Cockatoo Island, and the only impression I can get is that there was a weekly or a fortnightly examination regularly of all the employees in the painting trade there. That was the rule.

10606. You have a joint affidavit here, have you not, by men who have worked for varying periods from one month up to eighteen months at Cockatoo?—Yes, I produce that.

10607. MR. CONNINGTON: Dr. Roberts, in giving evidence, may have been referring more to the rule than the practice.

10608. MR. MAXING: I object to this document. It is a most misleading document. It is not directed to anything in particular, as far as I can see.

10609. DEPUTY-PRESIDENT: Supposing the fourteen men who signed this document had been omitted from examination out of as many as 500 men

on occasions in employment at Cockatoo Island, would it be the fault of the doctor? The doctor may give his evidence in the best of good faith, yet there may be quite a number of men who, by desires of their own, were not included in the group examined.

10610. MR. CONNINGTON: What are the views of your men who work at Cockatoo?—There is no system at all as regards examination by a doctor at Cockatoo Dock, and there has not been any for the last two years. Five years ago it was the general rule every fortnight, and was carried out very strictly at that time; but immediately the ships began to get ready for taking the troops away it was done away with, and it has not been brought into operation at all during the last two years, with very, very few exceptions.

10611. DEPUTY-PRESIDENT: That is an indirect statement, but reflects most seriously upon the doctor who gave the evidence, and are we to imagine he was wilfully misleading the Board? He believes, apparently, he examines men once a fortnight. Is that a pure imagining on his part?

10612. MR. CONNINGTON: The doctor said the practice had been to do so during the last two years, or something which would imply that what occurred prior to the two years has not happened during the two years.

10613. DEPUTY-PRESIDENT: Dr. Roberts gave us the sheet in which the result of his examination is entered. Dr. Roberts said at one stage in his evidence:

“One of my duties also was to examine all the employees engaged in dangerous trades or processes, particularly where lead was employed.”

Then he was asked:

“Do you advise as to occupational hygiene?—Only at the examinations. I examined any of the workers in lead, usually every fortnight. When convenient they were sent up in batches of twenty to thirty, sometimes more, and one got through them in a few days, examined the whole lot, and gave advice as to conditions. If I noticed a chap was at all off colour I would go into the question.”

10614. MR. CONNINGTON: He was asked:

“Will you tell us the method of your periodical examination of the men who were handling lead?—”

10615. MR. MANNING: Those who were sent up to be examined every fortnight.

10616. DEPUTY-PRESIDENT: The question you read continued:

“First of all, at what intervals did you examine them?—Fortnightly. They would come along and pass through a passage where I had a very good light; I would examine their teeth, gums, eyes, and generally the mucous membranes, and ask each man if he had any complaints to make.

“In respect to his health?—Anything at all. Those who had any complaint were put on one side, and we went into the matter more thoroughly.”

10617. MR. CONNINGTON: There is further evidence dealing with this subject.

10618. DEPUTY-PRESIDENT: That is no more definite than the evidence he gave to me during his examination-in-chief. The last question is:

“Does it mean that you have one day in a fortnight upon which you make an examination of the painters and dockers, and the painters then in the employ?—Yes, as convenient. Of course it may not be actually the fourteenth day, but it is approximately twice in the month.”

10619. MR. MANNING: He said that, as convenient, they were sent along in batches of twenty to thirty. Then he speaks about the method adopted and the fortnight as far as possible. Later he is asked what are the rules, and he says the men are sent along by their foreman in batches, as convenient, of

twenty, or thirty, or forty at a time. That does not justify this affidavit being put in by these men, that nine of them were not examined. It is not in issue.

10620. Mr. CONNINGTON: Yes, it is in issue.

10621. DEPUTY-PRESIDENT: Suppose we believe those who make the affidavit that they were not examined, do you suggest we should disbelieve the doctor? That is what Mr. Manning means when he suggests it is not in issue. The doctor is not responsible for marshalling the men for examination. He merely knows that at intervals, twice a month, he examines groups of men.

10622. Mr. CONNINGTON: Otherwise, both may be quite correct.

10623. DEPUTY-PRESIDENT: Yes. It is not necessary for us to assume that there are no men omitted from the group prior to examination.

10624. Mr. CONNINGTON: The mind of the union is that it is a very casual examination.

10625. DEPUTY-PRESIDENT: What are you going to say from the union's point of view when it is suggested to you a man who has lead-poisoning and does not present himself for examination has only himself to blame if his case is not recorded?

10626. Mr. CONNINGTON: If a man is suffering from lead-poisoning or any illness and does not present himself, that man is to blame.

10627. DEPUTY-PRESIDENT: And if his case is not recorded, when the Government wants the general health of the community investigated the man is himself again to blame.

10628. Mr. CONNINGTON: No. The man may be suffering some symptoms associated with painting; and you know the rule: if he is proved to be infected or diseased he may lose his job.

10629. DEPUTY-PRESIDENT: I do not know of any such rule at all. We have not heard that the naval establishment is so inhuman as to cast off men in their service without compensating them.

10630. Mr. CONNINGTON: We have this evidence, that if a man is found to be leaded they would recommend he be given another job on the Island.

10631. DEPUTY-PRESIDENT: If a man was suffering from the effects of lead the doctor would advise he be given a rest from the occupation he was engaged in there. Is not that a reason why a man should present himself?

10632. Mr. CONNINGTON: The suggestion was the manager would exercise his discretion in that regard.

10633. DEPUTY-PRESIDENT: The evidence given yesterday was evidence of what should, in ideal circumstances, be the rule. Professor Chapman said that persons who suffered from lead should be excluded from occupations in which lead was used.

10634. Mr. CONNINGTON: Cockatoo is just as humane as any other employer, I will admit; but there was the carelessness in the examination.

10635. DEPUTY-PRESIDENT: On whose part? You have already admitted if a man suffered from lead-poisoning and did not present himself for examination it is his fault.

10636. Mr. CONNINGTON: We have to go to Cockatoo, and workmen have not the liberty and freedom and do not think they can exercise that amount of independence they think they have a right to exercise.

10637. DEPUTY-PRESIDENT: But we are now talking particularly about the value of Dr. Roberts' evidence. If a workman refrains from submitting himself for examination, you would suggest the doctor is to blame. I suggest the man himself is to blame.

10638. Mr. CONNINGTON: I do not think I would be right if I suggested that, nor if you suggested it. These men are working on the Island, and if there is some one whose duty it is to see the men go before the doctor—

10639. DEPUTY-PRESIDENT: Then you acquit the doctor. You commence by blaming him.

10640. MR. CONNINGTON: I wish to say the system of medical examination is a very casual one.

10641. DEPUTY-PRESIDENT: Not the medical examination, but the system of marshalling and grouping the men for examination.

10642. MR. CONNINGTON: Although it is the rule that they be examined by the doctor, as a rule the man who is marshalling the men for examination does not carry out his duty.

10643. DEPUTY-PRESIDENT: Does that affect the value of the doctor's evidence, in so far as it is medical evidence?

10644. MR. CONNINGTON: No, but it may affect the value of his evidence if it is assumed all the men at Cockatoo——

10645. DEPUTY-PRESIDENT: It really affects the evidence of Mr. Shearman.

10646. MR. CONNINGTON: And affects the value of the weight to be given to the examination.

10647. DEPUTY-PRESIDENT: No, it does not. The doctor says that of all the men he has examined he has only found one with lead-poisoning. He says he examines them in groups of twenty, thirty, or forty per fortnight.

10648. MR. CONNINGTON: Suppose there are 500 men and we take it the doctor examines them every fortnight and only one was found to be leaded——

10649. DEPUTY-PRESIDENT: Does he relate his evidence as to the whole of the painters on the Island? If you are going to attack his evidence you should be able to show where he does.

10650. MR. CONNINGTON: I will go into his evidence and do the fair thing by him and give the Board——

10651. DEPUTY-PRESIDENT: Do not misunderstand the present position. That is a matter for argument and inference with regard to the value of any evidence which may be given to us, but you are doing something different now. You are submitting an affidavit which you suggest undermines the evidence of the doctor.

10652. MR. CONNINGTON: I had that in view when I put it in.

10653. DEPUTY-PRESIDENT: I am trying to point out to you that the evidence of the doctor, as far as I can see at the present time, is not affected by this statement.

10654. MR. CONNINGTON: His veracity is not affected at all. I am glad to be able to agree with you upon that. It has a bearing upon the system of marshalling.

10655. DEPUTY-PRESIDENT: But some one gave us a printed sheet showing all the men employed on the Island. That is Dr. Roberts' exhibit, and he shows in that the medical and surgical report of the Dockyard between 1st January and 31st December, 1920. At the bottom of the medical information is a statement showing the number of all ranks and ratings in the yard, and in that statement reference is made to painters. Then he does not relate his medical examinations to a certain number of patients employed on the Island.

10656. MR. CONNINGTON: He gave us to understand it was confined to workers in lead, electricians, and painters.

10657. DEPUTY-PRESIDENT: But he does not say there were so many painters employed on the Island at that time, and his one case does relate to that group. He gives the officers and staff at so many; A.G.M. and department at so many; engineering and machinery; electrical and engineering; store offices, works and railway officers eight, and men sixty.

10658. MR. CONNINGTON: Has he given any return showing the number of painters he dealt with during the two years, or the average he dealt with fortnightly?

10659. DEPUTY-PRESIDENT: No, I do not think he has done so. That is what I would like you to point out, if he has.

10660. MR. CONNINGTON: I thought at first there was no such return in. Then I understood there was some return showing the number dealt with by the doctor.

10661. DEPUTY-PRESIDENT: Mr. Shearman gave us a sheet showing the number of painters employed. The statement does not give a population of painters.

10662. MR. CONNINGTON: Then I have been misled with regard to the matter.

10663. DEPUTY-PRESIDENT: I have no objection to your questioning the value of the evidence from the point of view of its statistical merit.

10664. MR. CONNINGTON: Here is a letter from one man who was there a year, and he says the marshalling was very, very poor indeed.

10665. WITNESS: The union is very anxious about this matter, for this reason: There is not a man working at Cockatoo Dock as a painter who is not a member of our union. There is not one of them who has been there for any period at all who has been examined every fortnight.

10666. MR. MANNING: I object to this. How is this witness entitled to say that? He is talking as if he is leading the Board and everyone else. If a man has a grievance let him come here and we will see what it is. This witness cannot speak for any section of the community. I do not think anyone should be allowed to sit there and talk in that fashion. Let him bring the man along. The man may be a convicted felon, for all I know.

10667. MR. CONNINGTON: We have brought Mr. O'Brien here as secretary of the union——

10668. DEPUTY-PRESIDENT: The Board has asked Mr. O'Brien to make inquiries from certain members of his union with a view to obtaining their consent to the disclosure by the doctors who attended them of any record they may have; and he proposes now to give us the result of his inquiry. I do not think he can——

10669. MR. CONNINGTON: Subject to what you think, my impression is that Mr. O'Brien is entitled, as secretary of the union, having come here to speak of secretary of the union, to give the mind of the union on any particular point, and it is for the Board to exercise its own judgment as to what weight should be given to any statement made by him. Otherwise, how are we to get that general evidence which is so necessary.

10670. DEPUTY-PRESIDENT: He has given us a lot more than that. He is stating that men who have been employed at Cockatoo Dock for very long periods have never been examined at all. I have no doubt that in affording us that information——

10671. WITNESS: Excuse me; I said "fortnightly."

10672. DEPUTY-PRESIDENT: But that is indirect evidence. The witness forms the opinion or makes the statement on the authority of statements made to him.

10673. MR. CONNINGTON: That is quite so.

10674. DEPUTY-PRESIDENT: Then he is not a witness who gives us direct evidence at all, and a good deal of the statement he makes may be challenged, and properly challenged, as Mr. Manning has challenged it.

10675. MR. CONNINGTON: Not by suggesting that Mr. O'Brien is not entitled to make these statements. Mr. Manning can do so in his address——

10676. DEPUTY-PRESIDENT: But you cannot admit the evidence and then challenge it in addressing.

10677. MR. CONNINGTON: The test of everything is the evidence which is given. He has given you the opinion of the men as expressed by them to him. If it is challenged, it should be further investigated.

10678. DEPUTY-PRESIDENT: I do not think Mr. O'Brien can go further than to say members of his union employed at Cockatoo Island entertain the view that the medical inspection is imperfect, and that the recorded results of that inspection are unreliable.

10679. Mr. CONNINGTON: That is all you intended to say, is it not?—That is all I have said.

10680. You intended to convey to the Board the views of your members, as given to you?—Exactly.

10681. Mr. MANNING: It is absolute nonsense, and I hope the Board is not going to take notice of it.

10682. WITNESS: I would like to emphasise to the Board that the members of my union are under the impression—

10683. Mr. MANNING: I object to that. That involves the analysis by this witness of the minds of all the members of his union. It is ridiculous, this kind of thing.

10684. DEPUTY-PRESIDENT: As far as the attitude of the union to the inquiry is concerned, we are prepared to take evidence from union officials in touch with members of unions; but I do not know upon what point the witness wishes to make a statement at the present moment. We cannot allow the witness to take charge of the inquiry.

After discussion—

10685. DEPUTY-PRESIDENT: The members of the Board do not think this subsidiary issue as to the perfection of the arrangements at Cockatoo Island is of any importance at all, and the Board does not intend to try it.

10686. Mr. CONNINGTON: In that case we will not say anything further in regard to the matter. That is all the evidence I have to tender.

(Witness retired.)

JAMES K. MORICE, recalled, further examined by Mr. Manning:—

10687. What do you produce this morning?—The memorandum and articles of association of the British-Australian Lead Manufacturers Proprietary, Limited. I was unable to answer some questions asked of me when I was last here.

10688. You wanted to correct some evidence about the capital of your company?—Yes. I could not tell what was the capital on the last occasion. The authorised capital is £400,000, and the company was registered on 28th May, 1918. Those were the two questions I could not answer.

10689. DEPUTY-PRESIDENT: And this is a pamphlet showing the memorandum and articles of association as they exist to-day, including the amendments?—The £300,000 was the amount of capital then, but £400,000 is the amount to-day. That has been amended.

10690. There is no other alteration of any kind?—There is no other alteration.

[Memorandum and articles of association of the British-Australian Lead Manufacturers Proprietary, Limited, put in; marked Exhibit No. 31.]

(Witness retired.)

10691. DEPUTY-PRESIDENT: The Board will adjourn now to some date of which notice will be given if any further inquiry is determined upon. That is, if the arrangements suggested with regard to a clinical survey of the Railway employees can be carried on, the Board will meet in order to discuss details of the plan for that survey with those concerned in the inquiry. If the Board concludes it will not be practicable to carry out such

survey, the Board will meet again only to hear addresses. It will indicate its views with regard to the practicability of the scheme through its secretary to the parties, if it is determined that the scheme cannot be carried out.

10692. MR. MANNING: Will the Board leave over the date for the addresses until such time as this matter is determined?

10693. DEPUTY-PRESIDENT: I think it would be better to do that. Assuming that the Board finds that the scheme for the survey of the health of the Railway employees cannot be carried out, the Board will be prepared to hear addresses next week. If you, Mr. Manning, can get the information you require from the persons who are instructing you before the end of next week, and can inform us as to the effect of it, the Board will then make up its mind as to whether or not the proposal can be put into effect.

10694. MR. MANNING: I understood you were going to submit some suggestion as to the probable cost?

10695. DEPUTY-PRESIDENT: I would like to add this in the way of a suggestion which can be made at the present moment. If you can ascertain the cost of one of the scientific gentlemen taking part in the survey and report it to the Board, the Board will report the cost of the work that has to be done by the Railway officer and by the Public Health Department, and will make a computation of the total cost; we can then determine whether it can then associate itself, from the point of view of expense, with the survey.

10696. MR. MANNING: With that object in view, I would have to know the numbers to be examined.

10697. DEPUTY-PRESIDENT: So far as the communication of information on that point is concerned there need not be a formal meeting of the Board, but the Board's Secretary will be in touch with you, and will give such information as the Railway officer is able to give the Board as to the number of persons to be examined.

(At 12.30 p.m. the Board adjourned *sine die*.)

ADDRESS OF MR. H. E. MANNING.

Counsel for the White-lead Defence Committee.

(instructed by Norton Smith & Co., Solicitors, 39 Hunter-street, Sydney).

THE question submitted for the consideration and report of this Board is whether white-lead, as used in the painting industry, is so injurious to painters or other workmen engaged in such industry that it is expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments.

In addition the Board has been asked to investigate and report on all matters incidental thereto with a view to enabling the Government to determine the answers to be furnished to the questionnaire propounded by the International Labour Conference.

The question is one of immense importance to the whole of Australia, for the reason that any undue interference with the white-lead industry would have a ruinous effect on the working of the Barrier Mines at Broken Hill, involving consequences of such magnitude that any forecast of their real extent cannot possibly be made. It may be mentioned, however, that these consequences would certainly include the closing up of several very large industries which have grown up around the paint industry and the throwing out of work of thousands of employees whose livelihood is at present derived from these industries.

Again it should be borne in mind that the Broken Hill ore is of such a complex nature that the mines can only be profitably worked provided markets exist for each of the three metals extracted from them, namely, silver, zinc, and lead. Probably if any one of these metals were deprived of its market or its price were lessened through a diminution of demand the whole industry would fail.

Again any interference with the free disposal in an eager market of lead would immediately establish the ascendancy of the zinc industry in foreign countries (*e.g.*, Germany) where zinc may be extracted from an ore not complicated by the presence of other metals such as lead. This at any rate would result if the use of lead were prohibited in paints and zinc substituted for it.

While dealing with the subject of the questionnaire of the International Labour Office, some criticism must be directed at its methods, and for this purpose I quote the following extract from an article by the Right Hon. Lord Askwith in the "Nineteenth Century" of June, 1921:—

"The questionnaire on the subject of the prohibition of the use of white-lead in painting is a salient example of the semi-bureaucratic methods of the office. Briefly put, it is an uncompromising argument for the prohibition of white-lead and the adoption of plumbous zinc white as a substitute; though it must be stated, in fairness to the office, that some other substitutes are somewhat disparagingly mentioned. There is no attempt at the presentation of a full comparative case between the effects of white-lead on painters and the dangers afflicting those employed in other industries for

(*Address of Counsel—Mr. H. E. Manning.*)

which no prohibitions are proposed. There is no sign of those deliberate conclusions, drawn from carefully-collected and fully-stated evidence, which alone will render the results of any inquiry valuable. So unsatisfactory is the evidence given against white-lead and on behalf of plumbous zinc white that it is only necessary to note the suppressions in order to see the utter lack of value which is characteristic of this and other pamphlets emanating from Geneva. The whole pamphlet amounts to a pronouncement by the bureaucrat that he is satisfied that such-and-such should be the policy of the nations.

"The comparative figures given of deaths and disease affecting painters and those in other trades are not only useless, but tend merely to obscure the issue. For instance, the figures of the German Sickness Insurance Funds (of which funds there are 20,000) in the period 1910-1912 are compared with those in the Painters' Funds in Breslau and Leipzig for the same period. They show that, in all the 20,000 funds, the number of sickness cases per 100 workmen was 42·5, and the average days of sickness per 100 workmen 850; whilst for the Breslau painters the average cases are 52·15 and the days of sickness 1,230. The figures for the Leipzig painters are slightly smaller, but still well over the average for the general funds. It is difficult to see what value, other than a propaganda value, can be attached to a comparison between the painters' sickness in two selected towns and the general sickness of the whole of Germany; especially as no figures are given as to how many of the painters' diseases were occupational or general. Why were Breslau and Leipzig selected for the painters' figures; and why were not the sickness figures of those towns given? If one set of figures for the two towns was unavailable, the others should not have been given; and the same holds good of the general figures. No information is forthcoming from the pamphlet as to how many workers in trades not subject to occupational disease were included in the general figures; thus lowering the average of all the sickness of all the members, and ignoring the very important point of comparison between the occupational diseases of various trades and those of painters.

"Figures of painters' diseases covered by the Berlin Sick Benefit Society for the years 1900 to 1909 are also given, but no comparison with other trades is shown; neither is there any information as to the proportion of Berlin painters who are in this benefit society, or the sickness rate of those members who may be outside it. Even an approximately accurate conclusion as to painters' sickness in Germany alone, without taking into account the statistics of the other countries concerned, is impossible from these figures. Certainly no estimate can be made of how far the sickness mentioned is due to the use of white-lead. The only information given which definitely touches lead-poisoning is the statement that, out of 100 cases of lead-poisoning observed in the Prussian hospitals for the period 1904-1908 painters made up 34·6 of the cases, as against 22·9 for white-lead workers and 13 for foundries. No such figures for other countries are given, and the selection of the period is decidedly peculiar, as later figures must be available.

"It is significant also that all these statistics, with the exception of some British figures dealt with later, are culled from stated German sources, and

(*Address of Counsel—Mr. H. E. Manning.*)

relate to Germany. The fact that Germany is one of the countries who will benefit by the extended use of zinc white may be purely a coincidence; but it indicates how easily bureaucratic reports so carelessly prepared might engender suspicion that the International Labour Office was manipulated for the benefit of some nations against the interests of others. An advisory committee representing all the Governments, and including representatives of varied interests, could scarcely incur this suspicion to the same degree.

"In dealing with the British figures, the author of the pamphlet admits that lead-poisoning amongst painters is not notifiable in England, and that the only basis for figures is the fact that inspectors have been able to report numbers of cases. Yet these figures are compared with the lead-poisoning figures of other trades in which notification is compulsory, and the comparison is used for purposes of argument; although it is comparison between all the cases in some trades and an unascertainable proportion of the cases in the painting trade. These figures, relating to deaths per number of cases, must also be valueless. The Majority Report of the English Departmental Committee on the use of lead in painting (1914) stated that the rates of deaths and attacks due to lead-poisoning among house-painters are thus comparatively small.

"As to the prevention of lead-poisoning, the pamphlet says:

"Statistics prove unmistakably that a decrease in lead-poisoning amongst painters, red-lead workers, and even among white-lead workers, has been noticed in permanent workshops where preventive measures have been taken.

"Any control of hygienic measures is impossible in the case of painters and workers in similar occupations, where places of work are scattered.

"These are categorical statements, intended for the guidance of Governments in considering prohibition; yet not a single word of confirmatory evidence respecting them is given, and no special authority is quoted. Three possible sets of regulations for protection are given and cursorily dismissed with the remark that they are 'notoriously insufficient'; again no evidence is adduced and no authority quoted. Not the slightest mention is made of the effect of the prohibition of dry rubbing-down of paint, which experts in this country have declared to be the principal cause of lead-poisoning amongst painters, and respecting which regulations can be made and enforced with considerable ease. Instead, this part of the matter is dismissed with the remark that 'The only remedy is the total prohibition of the use of colours with a white-lead basis.' And this, although it appears that the majority of European nations have, after inquiries, adopted the policy of regulations which is thus curtly rejected.

"As to the possibility of the substitution of white-lead by zinc white, the argument is still more dogmatic. It may be summed up in the single statement that—

"All experts are agreed that the substitution of white-lead by harmless substances is possible.

"And yet the Irish Master Painters, who must be numbered amongst the experts, recently passed a resolution on this subject which anything but bore out the statement that all experts are agreed. The resolution reads:

(Address of Counsel—Mr. H. E. Manning.)

"The shortage of white-lead during the war has given our members a unique experience with all the leadless light-coloured paints on the market; and the results have been so unfavourable that, we state without hesitation, no substitute for outside painting which can compare with white-lead has come to our knowledge. The time has not been sufficiently long to speak with equal certainty regarding inside work; but there are not wanting signs that here, too, lead is much superior to the so-called zinc paints.

"The Master Painters of the United Kingdom have also, it appears from the publications of the International Labour Office, addressed representations to it, stating that white-lead has unique qualities as a protective painting material, and that a comprehensive and well-devised code of regulations (of which they suggest a scheme) could effectively cope with any danger to the health of painters which may arise from the use of white-lead.

"The full danger of this particular pamphlet is only realised when it is noted that it takes no account whatsoever of the economic side of the matter; and that no recognition is to be found of the fact that the British nation, for one, will be very much more seriously affected by the prohibition than will other nations to which the questionnaire is addressed. The prolonged defence of plumbous zinc white which comes under the technical side of the argument is, indeed, one continuous blow at an important section of British trade. It is, on the other hand, excellent propaganda for the trade of those countries which have specialised in the production of spelter and zinc; of which Germany is a notable example. British production of zinc white, on a basis capable of meeting the needs of British painters under a prohibition of white-lead, could not be developed for many years, if at all; and during the course of development would have to meet the keen competition of those countries which are already organised to supply the world's demands for zinc white.

"Britain has specialised in the production of white-lead more than any other country; and the sudden prohibition of its use in painting must kill this large industry and leave its men unemployed; since the prohibition being international, there would be neither home nor foreign demand for the product. On the other hand, the trade of other countries (Germany again presents herself as a notable example) would receive a sudden fillip; added to which the traders of these countries would gain the inestimable advantage which always accrues to those who are first in the market. The ultimate result to Britain would be that, having lost a valuable home and foreign market, she would be compelled to import zinc pigment at a very much higher price than that now ruling for white-lead. All painting would become very much more expensive, since British experts declare that the covering power of zinc white is so much less than that of white-lead that much more of it must be used in order to cover a given area.

"To arrive at a conclusion as to whether prohibition of the use of white-lead is desirable, Britain at any rate, must be presented with all the facts and all the figures relating to the effects of its use, together with all the facts relating to the economic loss and unemployment which would follow the prohibition. On this basis she can form an estimate of the extent of the danger and whether its remedy by prohibition would be more costly or less

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costly than the lessening of danger is worth. There can be little doubt that, were the matter presented thus, very effective preventive regulations could be devised which would not at the same time involve wholesale unemployment, loss of export trade, and dependence on import. No such conclusions can be come to on the evidence contained in the International Labour Office pamphlet, which is in itself an invitation to precipitate an unconsidered action; since it invites nations to express an opinion on a exceedingly complicated matter in time far too short for its complete consideration."

These general observations derive much support from facts such as those given in evidence by Mr. Fraser. By reason of his experience he is in an unique position to give evidence on the subject he deals with. He points out that the Australian industry in lead depends upon the export business as to about 90 per cent. of its nominal output of lead.

He estimates the world's output in 1913 (before war period) was 1,170,000 tons of pig-lead, and of that something over 20 per cent. goes into white-lead; of the output of pig-lead from Broken Hill, he estimates from 35 per cent. to 40 per cent. goes into corroding. The Australian supply to the total world's output would be about 200,000 to 215,000 tons, *i.e.*, about 20 per cent. Out of the 225,000 tons of pig-lead 191,000 tons goes into paint. If the use of white-lead in paint were prohibited it would mean a very heavy cut in the world's consumption of pig-lead, and would therefore bring about a permanently lower range for the price of lead. As lead is the principal product of these mines and zinc merely a by-product the effect of such a prohibition is manifest.

The rest of the evidence of Mr. Fraser is directed to showing that any increase in the demand for zinc cannot make up sufficiently for the loss in lead to save the Broken Hill mines from utter failure. The next consequence is the paralysis of the industries which he and Mr. Sevier and Mr. Morice refer to and the throwing out of employment of the employees in those industries.

Having referred to the disastrous consequences of prohibition I now proceed to a consideration of the alleged disadvantages attendant on the use of white-lead in paints.

At the outset of this inquiry a difficulty appeared to exist as to the most effective manner of dealing with the matter. In the nature of things a number of experimental methods had to be adopted so that this Board might have its attention directed to a selection of various avenues of inquiry which might possibly lead to some useful result. The avenues may be classified under the following heads:—

1. That leading to the conclusion that a considerable percentage of painters were under the impression that their health was impaired by their occupation and that the use by them of white-lead was the cause of their ill-health.
2. The cases of plumbism occurring in large institutions where paints were used containing a lead base.
3. The cases of plumbism occurring in the whole community and amongst painters as shown by State statistics.
4. Scientific medical knowledge on the subject.

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Before dealing with these classes in detail I think it may be fairly said in respect of them that they failed to establish cases of actual lead-poisoning in sufficient numbers to justify any interference with the use of white-lead in paints. It is further to be noted that in none of the classes, except class 3, were the figures placed in any perspective sufficient to show whether those numbers constituted anything more than a mere insignificant proportion of those exposed to the risk.

These are the obvious criticisms of a mere general character and their development in detail will be shown later on.

It may here be mentioned, however, that when failure to reach any conclusion by these methods adverse to the use of white-lead was reached, the inquiry proceeded rather in the direction of ascertaining whether painters as a whole were not by reason of their occupation subjected to the risk of incurring illnesses in a greater degree than persons of other occupations and whether this increased susceptibility, if it existed, was not due to the use of white-lead.

It is on this part of the case really that the figures of Mr. Sawkins were gone into and carefully examined.

1.

Dealing in detail with these four avenues which were explored, and starting with No. 1, which was first gone into, I would like to offer a warning against attaching very much importance to the evidence given by the men themselves, at any rate to such portions of it as dealt with the diagnosis of their complaints. This warning will be justified by a cursory glance at the evidence of Dr. Smith and Professor Chapman, who point, as experts of very considerable weight, to the remarkable difficulties of diagnosis in the case of lead-poisoning.

Some of their cases were also dealt with by Dr. Nash, a general practitioner, and his diagnosis of the lead-poisoning cases was not by any means of a satisfactory nature, especially in view of the evidence given by the specialists, Dr. Smith and Professor Chapman, on the reliability of the tests he applied. He said, at page 141, that the infallible sign of plumbism is the blue line. This has been shown by all the other medical witnesses to be quite wrong. In addition, I do not think that even Dr. Nash himself considered his diagnosis was based on anything more than a mere working rule, applied after he had formed a preconceived notion of their ailments from a knowledge of what the men themselves thought and the nature of their occupation.

The procedure leading up to Dr. Nash's diagnosis appears to have been that a complaint would first be made by an operative to his union secretary that he was suffering from lead-poisoning, the union secretary would send him on to the Department of Labour and Industry, and from there he would go to the certifying surgeon.

The letter given to the operative by the Department for presentation to Dr. Nash states the nature of the illness from which the operative considers he is suffering and the nature of his occupation. This procedure would naturally result in an examination to see whether the symptoms were compatible with the existence of the illness complained of.

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It might perhaps also be noted that although Dr. Nash was certifying surgeon under the Workmen's Compensation Act for the whole metropolitan area from the 24th January, 1918, he had only examined twenty cases of plumbism up till March, 1921, and of these only sixteen were painters [p. 147].

I have pointed out the danger of relying upon the evidence given by the operative painters as to the nature or symptoms of their ailments, first because the figures are not brought into juxtaposition with the numbers from which they are extracted, and secondly because it is at the least uncertain what particular ailments the symptoms indicate.

Coming to a consideration of these symptoms in detail, I enumerate them for the sake of brevity as blue line, colic anæmia, chronic constipation, wrist-drop, and bodily pains analogous to those of rheumatism. These were the symptoms most generally referred to by the operatives and used for practical purposes by Dr. Nash.

Dr. Nash also asserts that blue line, anæmia, and muscular weakness are the three infallible signs of plumbism.

Without attempting to minimise their importance in the diagnosis of plumbism I merely point out that they do not possess anything like the importance attributed to them by Dr. Nash and the operatives.

The highly expert testimony of Dr. Smith and Professor Chapman must be accepted as concluding all questions relating to the medical knowledge of the subject.

As far as the blue line is concerned, Dr. Smith says at p. 806 that it is a sign not of lead-poisoning, but of exposure to lead, and in the same page he states that the existence of the blue line is the most frequent source of error in diagnosis. In support of this he refers to Legge and Goadby, p. 125; Priestly in the Medical Annual of 1915, p. 730; and Sellors in the Journal of Industrial Hygiene, vol. 2, February, 1921. This evidence is also borne out by Professor Chapman. I merely refer to this evidence to show that "Blue Line" has acquired, amongst the comparatively inexperienced, a degree of importance in diagnosis to which it is by no means entitled. It may also be noted that Dr. Graham states on p. 397: "The lead line does not mean anything very much except that it demonstrates the presence of lead in the body."

As to colic, it is scarcely necessary to resort to medical evidence to establish that this may indicate any one or more of a large number of ailments, *e.g.*, acute indigestion, appendicitis, and other ailments of that kind. If such medical evidence were required, it was given by Dr. Graham at p. 397.

As to anæmia Dr. Nash stated that the pallor was an infallible sign of plumbism, but Dr. Smith shows that this can only be decided upon after an analysis of the blood.

Without going into a mass of detail, the same criticism may be offered about the other enumerated symptoms which were claimed by the operatives as the indicia of lead-poisoning. The evidence of Mr. Spence, reported on page 209 and onwards, shows the uncertainty of these symptoms even when being handled by medical men.

It may also be noted that the majority of them are attributable to turpentine as well as to lead.

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Evidence was also given by operatives and the union secretaries, Mr. O'Brien and Mr. Flanagan, that complaints were frequent in the industry—first that the industry was an unhealthy one, and secondly that lead was the cause. It is sufficient to say of this class of evidence that it was the vaguest and most shadowy kind, and no real attempt was made to support it when the tests of cross-examination were applied. In addition evidence to the contrary was given by a number of witnesses who had spent a lifetime in the industry, and Mr. Mason, who was at one time secretary and later president of the Master Painters' Association, gives some idea of the hollowness of such a suggestion when he states that the question was never even discussed at any meetings of his association, as far as he knew.

This class of evidence has only been dealt with generally, as there is nothing special about it which appears to require any further treatment.

2. *The cases of plumbism occurring in large institutions where paints were used containing a lead base.*

The first institution in respect of which evidence was given was the Treasury Insurance Branch, where a scheme of insurance in relation to accidents was inaugurated in 1917—the date of the Workmen's Compensation Act. Mr. Spence was the clerk who spoke as to the experience of that institution, and on p. 204 he states that since 1917 there have only been six claims made by painters within the whole operations of the Government service. He also gave some evidence about the insurance rates for painters as compared with those for workers in other occupations, but these can be dealt with on more exact testimony later on.

The next institution was the Water and Sewerage Board. Dr. Stokes, the medical officer of the Board, stated that the Board used a considerable amount of paint in its work.

The number of permanent painters, however, was only five, but there were from twenty to thirty casual men employed from time to time. He states he would be consulted with regard to the health conditions that were likely to be produced by the use of the various materials, but that he was never consulted with regard to the use of paints containing carbonate of lead, despite the fact that the lead base paints are the paints which are used [p. 234]. His evidence may be briefly summarized in his statement that "none of the men have ever reported to me with any sickness which can be reasonably supposed to be attributable to lead. I have never seen a case of lead-poisoning" [p. 234]. In this statement he is speaking of his seventeen years' experience with the Board. He also states that he has not noticed any tendency to minor ailments on the part of painters or those associated with that work, and that although he was in a position to notice absenteeism amongst the various classes of workmen, he has never noticed it amongst painters.

Mr. Bagnall, the Controller of Stores, on the subject generally of the state of the men's health, in answer to the question by the Deputy-President, "Has the question of the effect upon the health of the men been raised, to your knowledge, in connection with the use of white-lead?" says, "I have not heard of any sickness, but, of course, our medical officer can speak of that." The views of the medical officer, Dr. Stokes, have already been referred to.

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We now come to the evidence in connection with the Railway Department, which is probably the most important of all on this aspect of the case.

Mr. McEvoy deals with the matter in the first instance as secretary to the Railway Commissioners' Superannuation Board [McEvoy, vol. 4, 257].

The superannuation scheme is, roughly, a pension scheme for a man upon retirement at the age of 60 years, or at an earlier age if he retires owing to ill-health. In addition any person who retires on the certificate of the Railway Medical Officer that he is unfit for further work receives a pension, provided he has a service of ten years or longer. In the case of men who have not served as long as ten years, if they are found to be suffering from industrial disease, upon retirement they receive a gratuity not exceeding one month's pay for each year's service.

Mr. McEvoy states that there are in all 401 painters employed by the Railway Commissioners, and so far as the records of the Railway Service Superannuation are concerned there have been no cases of men whose illness has been reported by the Railway Medical Officer to be due to the effects of lead.

Mr. McEvoy also gives the evidence that apart from superannuation, if a man suffers from lead-poisoning he has a claim against the Railway Commissioners under the Workmen's Compensation Act. In regard to workmen's compensation he is able to say that the Commissioners have paid no compensation either in fatal cases or permanent incapacity as the result of lead-poisoning; nor has any claim been made. [See pp. 257 and 258.]

This evidence of Mr. McEvoy is supplemented by the evidence of the Assistant Medical Officer to the Railway Commissioners, Dr. O'Reilly, who has held the position for nine and a half years. During this period he has seen all the medical certificates forwarded to the Medical Officers' Branch, in accordance with the requirements of the regulations, in cases of employees who have been off duty ill for a period of longer than three days. Of these, the certificates from January, 1920, to the end of May, 1921, number 16,700, and of that number three were certified to be cases of lead-poisoning. Of the three cases only one was that of a painter.

On the subject, then, of the health of the men generally [see p. 289], Mr. Parry, in answer to a question as to what he had observed with regard to the health of the painters and their assistants, says that they keep very good health. Again Mr. Knudson, the foreman painter of the Permanent-Way Department, states that only in two cases in twelve years had he reason to consider that men working in the paint shops had suffered from their association with lead paints. In addition he states: "Of course we have little sicknesses, but nothing attributable to paint" [pp. 417-418.]

Mr. Bloom, the foreman painter at Garden Island, says that he would not expect a painter to lose time any more than a man in any other occupation, and that, taking them as a whole, he thinks painters are fairly healthy [p. 295].

With regard to the painters at Cockatoo Island, Mr. Shearman, the foreman, gives very definite and emphatic evidence. Out of a total number of painters averaging sixty-three per day, there has only been one case of white-lead poisoning during the last eighteen months.

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Then Dr. Roberts gives evidence as the medical officer of the Naval Dockyards at Cockatoo Island. He states, "I examined any of the workers in lead usually every fortnight. When convenient they were sent up in batches of twenty or thirty, sometimes more," &c. He separated those who complained of ill-health and examined them more thoroughly. He gave the result of his experience from November, 1919, to June, 1921, in the following words:—"I did not see what I regarded as a typical blue line in any of those cases during the year. There was only one case of typical lead-poisoning during my time. Of course, if there was any suspicion I had the urine tested, and also gave them advice," &c. In addition it appears from his evidence that there were in the period of a year 2,143 cases of all sorts of illnesses and accidents requiring medical attention. Of these there were thirty-nine professional painters and 163 paniters and dockers [pp. 524-525.]

At the request of the Board investigations were also made by the Inspector-General of Mental Hospitals into the incidence of plumbism as a causative factor in insanity, and he supplies the result of his investigations in the form of statistics. These were referred to Mr. Sawkins for examination, and he has embodied the result in the form of a report which concludes with the statement that "Dr. Sinclair is therefore statistically justified in his conclusion that plumbism as a causative factor in insanity in New South Wales has but little incidence."

Throughout the investigation in reference to these various institutions a considerable volume of evidence was devoted to the question of absenteeism. This evidence was obtained primarily to establish facts to which the testimony of the medical experts might be subsequently directed. Its utility could not be established *per se*, but only if it could be accounted for by specific causes or if the whole of the absenteeism among painters could be assigned to one individual cause. The only relevant feature in evidence of this class is the extent to which such absenteeism is attributable to the use of white-lead in paints. In the case of painters generally the medical testimony shows that the illnesses from which they suffer and which account for their absence from work may be due to any one of a number of causes—*e.g.*, the fact that they frequently work in confined spaces, the fact that they associate closely together, the use of lead and turpentine, and the fact that a certain amount of their work is done in water. On the medical evidence the cause which contributes most materially to these illnesses is probably turpentine. In effect the result of the whole examination into these institutions turns out to be of a negative character. The importance of this part of the investigation, however, has been to establish the fact that whatever fears may have existed in the minds of the operatives as to the alleged danger of working with paints containing white-lead these fears have been groundless. This acquires an added degree of importance from the statement of the Deputy-President, on page 343, that the evidence with reference to employees of the big institutions really deals with the question in regard to "a substantial proportion of the whole of the painting tradesmen in the State."

It may also be added that this is the result obtained from the figures of the only institutions in which annual records are kept.

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Dealing with the third heading, I now come to a consideration of the statistics, which were produced and elaborated by Mr. Sawkins.

The statistics produced by Mr. Sawkins do not stand alone as mere items of evidence.

In addition to the figures themselves, we have the advantage of the exceedingly careful logical and exact criticism of them by Mr. Sawkins. He paves the way for his evidence by a carefully-worded letter to the Government Statistician, in which he adds to his request the statement, "Such statistics covering a period of five years would probably throw much light on the question" [p. 562]. This statement must be taken as showing the degree of importance which he attaches to the figures.

The Government Statistician, on the other hand, points in his letter in reply to a difficulty in any consideration of occupational mortality arising from the fact that changes from one occupation to another may often result in deaths occurring after the transfer being recorded under the occupation which is being followed at the time of death [p. 563].

Mr. Sawkins, however, gave some special consideration to this point, and on being asked whether this change would not account for the general death-rate of painters being in conflict with the particular inferences deducible from the figures of their specific diseases stated that he did not know that it would—that it was a very difficult point [p. 570].

Dealing with the actual statistics themselves, I draw attention first to Exhibits No. 11, 12, and 13.

These are worked out by Mr. Sawkins for the purpose of the final demonstration contained in Exhibit 13, that the largest proportion of deaths of painters occurs somewhere about the age of 50 to 54, that of plumbers about the age 45 to 50, that of carpenters about the age 70 to 75 [p. 565].

This table does not afford a proof, but merely an indication of the extent to which any one of the classes there dealt with may be said to be long-lived [p. 566].

The average of those who died has also been worked out, showing of painters who died the average age at death was 55.5; of all occupations 57.1.

In addition, however, Mr. Sawkins supplies a criticism of this table, namely that the average age at death is not a complete criterion of whether an occupation is healthy. He adds that it used to be used a good deal some decades back, but nowadays it has not the same standing as a criterion [p. 566].

Mr. Sawkins, however, goes on to point out what are its uses as a criterion by showing that if a comparison of the age constitution of the living population of painters be made with the age constitution of the generally occupied living males in the community, and that comparison did not show any outstanding differences, and if the age at death of those who died from the first occupation was much lower than the age at death of those who died in general occupations, there would be stronger evidence that that occupation might be comparatively unhealthy [p. 566].

This comparison was made, and the results appear in Exhibit 14. The result is that "after the age of 50 the number of old painters does not com-

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pare very favourably with the number of old bread-winners. But anything like a clear view of the comparison is obstructed by the fact that after this age painters probably retire into other walks of life."

The exact extent, however, to which this is true cannot be ascertained directly, but Mr. Sawkins realised the possibility of further exploring available statistics on this point [p. 567].

He shows that in the census the total population of bread-winners is a little more than 100 times the population of house-painters, glaziers, and paperhangers [p. 570].

In Exhibit 12, the total number deaths of painters and glaziers in those years was 1,309 and the total number of deaths of all occupations was a little more than 100 times as great. Consequently, he says, it does not look as if there was very much difference between the absolute death-rate of painters and glaziers and the absolute death-rate of persons of all occupations [p. 573].

On page 573 he states, "The general death-rate does not seem to be very much different from the death-rate of the average bread-winner."

Furthermore, he states that all the table shows is that those who died had a lower average age in the case of painters, and that it is therefore not a fair inference to say that painters live a shorter life. The table does not give any information about painters who are alive.

Returning to the witness—after further investigation of statistics, Mr. Sawkins states that he had meanwhile tried to resolve the apparent conflict between the death-rate of painters and the figures showing the relative frequencies of certain diseases, and to do that he made an approximation to the absolute population of painters at the census of 1911 [p. 742].

How this was done has been pointed out by him, and appears to have been rightly accepted as a legitimate process [p. 744]. He gets the crude death-rate of house-painters of 12·9 which, as he points out later, is not of very much use [p. 746]. It may, perhaps, be said that having placed that figure before the Board as a statistical fact for what it may be worth, he then leaves it and proceeds to supply other figures which, in his opinion, are of much more value in a comparison of the morality of painters and persons of all occupations (except independent and indefinite). These figures appear in Exhibit 22, and after showing there the comparison in age groups, he states at the conclusion of the first table, "If the death-rate of painters at the various ages be applied to the population of males of all occupations (*i.e.*, at these various ages) the resultant death-rate is 15·7 per 1,000. This may be taken as the index of mortality for the painters and as comparable with 12·0 for all occupations. He points out, however, that the figure 15·7 is an extreme figure, and that it would not be unjustifiable to lessen it 10 per cent., which would bring down the 15·7 to 14·1.

It may, perhaps, be taken quite fairly that these figures represent the culminating point in Mr. Sawkins' calculations for the purpose of comparing the mortality of painters with that of all occupations, and his subsequent tables are designed to indicate precisely what causes make up the maximum difference of 3·7. This appears in Exhibit 23.

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It is unnecessary to follow him through the subsequent steps in his calculations, but his final conclusion is one of considerable importance, in which he states, "It looks as if tuberculosis and Bright's disease are the chief causes of the difference" [p. 749]. It should be noted that Mr. Sawkins states, "Of course I do not know how far tuberculosis and Bright's disease are due to lead. *That is a matter for medical experts.*"

It is, perhaps, at this point that the medical evidence of Professor Chapman and Dr. S. A. Smith become of paramount importance. They really started at the point reached by Mr. Sawkins, where he shows that the index of mortality among painters is a maximum of 15·7 as against 12·0 in the case of all other occupations, and where he attributes the difference of 3·7 substantially to tuberculosis and Bright's disease.

Dealing first of all with tuberculosis, Dr. Smith and Professor Chapman both say that lead, clinically, has never been regarded as having any particular or special influence on the incidence of tuberculosis, nor do the text-books suggest any connection between the two. Dr. Smith points out in particular that "Cobbett's Causes of Tuberculosis," the greatest authority on the subject, published in 1918, though it contains a discussion of the effects of various trades upon the incidence of tuberculosis on the workers, does not mention the question of lead. Dr. Smith goes on to say that it was an entirely new view to him that there was any conjunction between lead and tuberculosis. This evidence is also borne out by the Assistant Railway Medical Officer, Dr. O'Reilly, in his evidence at pp. 276 and 281.

When asked for an explanation of the tuberculosis figures supplied by Mr. Sawkins, Professor Chapman and Dr. Smith suggest that painters work together in enclosed spaces very frequently, and possibly infect one another. However, they state in their opinion that tuberculosis has nothing whatever to do with lead, and in support of this opinion Dr. Smith points out what his experiences were at Broken Hill. He there worked in conjunction with Dr. Chapman and a number of other medical men on the Technical Commission appointed by the Government to inquire into morbidity of workers in metalliferous mines. They were specifically asked to make an examination of 30 per cent. of the persons working in Broken Hill. (In fact they examined the whole group of those exposed to lead.) He says that on that occasion they investigated a population which was exposed to both lead and tuberculosis to a greater degree than usual, and they found that out of 361 people suffering from symptoms which might possibly have been due to lead-poisoning only nine had tuberculosis. They further found that of those 361 two classes, viz., cases with increased blood pressure, cardiac changes, albuminuria, and also cases with high blood pressure, and albuminuria, which classes include those who most definitely have any nephritis, no tuberculosis was found in these cases at all.

Professor Chapman then deals with the subject of tuberculosis, and points out, that, in his opinion also, lead cannot in any way be responsible for tuberculosis. Coming, then, to the question of whether persons who are poisoned with lead are increasingly susceptible to tubercle, he draws on his experience at Broken Hill, and points to some very significant results. It may be observed in passing that the experience gained by him and Dr. Smith at

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Broken Hill was something quite unique, and probably entitles them to speak on the subject of the effects of exposure to lead and its incidence on the contraction of other diseases with equal, if not greater, authority than any other known living scientist.

Professor Chapman puts the case in regard to tuberculosis with such remarkable clearness that I cannot do better than read from the evidence exactly what he says upon the subject.

He states at p. 847: "At Broken Hill we had a population which was, I think, useful to deal with in this question. It was a population markedly exposed to tuberculosis; it had a very high morbidity rate of tuberculosis, and was also markedly exposed to lead." I would like to turn to these figures of the groups which he had before, taking the cases which had some possible symptoms of poisoning with lead. We found there were sixty-one persons who had taken in lead and were susceptible to lead to the extent that they had increased blood pressure, cardiac changes, and albuminuria; of those sixty-one none had tuberculosis. Of the next group with high blood pressure and albuminuria twenty-seven, none had tuberculosis. Of the ninety persons with high blood pressure and cardiac changes, nine had tuberculosis. Of the next group with high blood pressure only of the eighty-nine there were none with tuberculosis. Of the cases with albuminuria (only ninety-four), there were none with tubercle. In other words, out of 361 persons who may or may not be assumed to have some possible symptom of poisoning with lead, nine only were cases of tuberculosis, and of the eighty-eight persons who had the most marked sign of any affectionation with lead, none at all had tubercle.

As a matter of fact, it is an observation Goadby has noted once or twice, that in some cases where people are susceptible to both lead and tubercle, you do not find any association.

It appears as if people who were poisoned with lead become resistant to tubercle. Of course, there are other places in which that does not appear to hold.

Again I would like to point out that the liability to tuberculosis amongst painters is not really so very high. As soon as we get a special risk from tuberculosis in an industry the mortality is altogether greater than that seen amongst the painters. Thus, for example, amongst miners it was found the death-rate from pulmonary tuberculosis alone was equal to the whole death-rate amongst painters. It was 12·7 per thousand living, while the total mortality amongst painters was 12·9 per thousand living. That figure 128 [see Mr. Sawkins' figures for tuberculosis in Exhibit 15] there is not very dissimilar from the figure for tuberculosis amongst persons in the industrial class. It is about that type of figure. It seems to me that painters are exposed to some risk in their occupation, probably something in the way they associate together (because tubercle is an infective disease), whereby you find more tubercle than amongst the average population, but I do not think there is much more tubercle than amongst the industrial class who work in towns. You have to recollect the average figure, *i.e.*, 90·4 [see Exhibit 15], includes a very large group of primary producers who are, I

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may say, taken altogether, free from tubercle, and that tends to bring the average very much down. Painters, on the other hand, are persons who have to work inside a good deal, and who probably get more opportunities of associating together, and that undoubtedly raises the morbidity from tubercle. This statement of Professor Chapman acquires added strength from Mr. Sawkins' figures showing a comparison of the death-rate from tuberculosis among painters in Australia per 1,000 and of white males insured by the Metropolitan Life Insurance Company of New York. The latter, he finds, is about 75 per cent. bigger than the death-rate of Australian painters.

Passing from tuberculosis and coming to Bright's disease, Dr. Smith and Professor Chapman both give an exhaustive analysis of the question of the incidence of lead on this disease. Dr. Smith, at p. 811, enumerates the various causes of Bright's disease, and includes amongst them lead. A very important fact is that he states turpentine as a cause, and says of it that "continued exposure to small quantities of turpentine must be a potent cause in the determination of Bright's disease." He had previously stated that turpentine was a very powerful irritant to the kidneys [p. 811]. He further states a fact of supreme importance, namely, that there is no means of differentiating in the individual case between the various causes which he enumerates.

Professor Chapman further elaborates the theory of Dr. Smith by reference to his actual Broken Hill experience. He states at p. 845: "Even the excess we found due to nephritis amongst painters is not due to chronic nephritis caused by lead because painters are exposed to another irritant—turpentine. This is an even more powerful irritant to the kidneys than lead. It is only within comparatively recent years that it has been recognised that some of the effects seen in painters and formerly attributed to lead, are due to turpentine. When we were at Broken Hill we had one or two very interesting experiences in this respect. Lead causes a destruction of the blood corpuscles, and one of the signs that can be seen with a microscope in the blood of persons who were supposed to be exposed to lead was a change in the blood corpuscles—basophile degeneration. It was supposed that this was a certain sign of poisoning by lead. When we went to Broken Hill we examined blood, and in several hundred persons we did not find a single example of this. Despite the fact that we had absolute evidence these persons were taking in lead and had actual symptoms of lead-poisoning, we found no signs of basophile degeneration. On the question, workers in England have also noted that the basophile degeneration is no longer characteristic of lead, but is probably due to turpentine [p. 840].

"Basophile degeneration of red cells is not uncommon in persons we used to take to be poisoned by lead in Prince Alfred Hospital, but after my experience at Broken Hill I feel pretty certain that has nothing to do with lead at all."

As the Broken Hill figures given by Professor Chapman are of such importance, being one of the results obtained from this unique opportunity of observation, I set them out here in tabulated form.

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Figures for those at Broken Hill showing any symptoms whatever that might be due to lead:—

9.3 per cent.,	70 out of	741—exposed under 10 years.
12.5 per cent.,	68 out of	544—exposed 10 to 20 years.
33 per cent.,	97 out of	289—exposed 20 to 30 years.
26 per cent.,	32 out of	123—exposed over 30 years.
16 per cent.,	277 out of	1,697—exposed freely.

No symptoms of any kind whatever:—

91.7 per cent.,	670 out of	741—exposed under 10 years.
87.5 per cent.,	476 out of	544—exposed 10 to 20 years.
67 per cent.,	192 out of	289—exposed 20 to 30 years.
74 per cent.,	91 out of	123—exposed over 30 years.

I return now to the evidence of Dr. Smith at p. 815 for the purpose of referring to certain figures collected by him from the records of the Royal Prince Alfred Hospital.

These show that between 1910 and 1919 the total number of cases of chronic Bright's disease treated in the case of males over 25 years of age was 297. The number of cases according to occupations respectively were as follows:—

Painters, 6.
Plumbers, 3.
Carters, 14.
Seamen, 12.
Carpenters, 8.
Labourers undefined, 17.
Pensioners (mainly old-age pensioners), 36.
Returned soldiers, 2.

The doctor states that he got these figures to see if there was any clear indication painters were more effected than other classes, and the answer given by the figures is in the negative. The figures show that there is no clear preponderance in the case of painters among these 297 cases [p. 814]. Mr. Sawkins also in respect of Bright's disease points to the fact that the index of mortality among Australian painters over 20 years of age from Bright's disease is about 2.6 per 1,000. The actual death-rate of these from Bright's disease would be about 20 per cent. less, *i.e.*, 2.0 [p. 755]. He points out then that that figure is almost identical with the death-rate of almost the whole industrial population of the United States.

The only reasonable conclusions therefore to be drawn from the scientific evidence in regard to chronic Bright's disease among painters are as follows:—

1. The Prince Alfred Hospital figures show no preponderance of this disease amongst painters.
2. Although formerly basophile degeneration was attributed to lead, this has since been found to be erroneous; and its presence amongst painters, where it occurs, can only be attributed to turpentine.
3. The relative frequency figures of Mr. Sawkins in regard to Bright's disease are due to the fact very largely that the higher percentage in the case of painters is due to turpentine.

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I left Mr. Sawkins' figures at the point when he indicated the index of mortality among painters at the figure 15·7 as its extreme limit, with a possible reduction to 14·1. I now return to his evidence to trace the effect of his further research on the subject generally.

This second collection of figures in Exhibit 22 are round-table life figures showing a comparison of painters and all males.

The result of this table is to show that the expectation of life at age of 20 in the case of painters, is about 42 years, and in the case of all males about 45 years.

This table is given, as Mr. Sawkins says, to put into proper perspective the index of mortality figures 15·7 and 12·0. He says the difference is about three years in the average future lifetime of a man who has attained the age of 20. [P. 747.]

To further get the rate of 12·9 in proper perspective, Mr. Sawkins took out roughly the death-rates in big occupational groups as a result of the deaths round about the year 1911, and he sets them out in page 752. He then shows reasons for combining the transport and communication and industrial classes, and on a comparison of this combination with the case of the painters he states that "the case of painters does not seem to be an extraordinary one." Mr. Sawkins finds that 15·3 per 1,000 is the weighted mean death-rate of the industrial and transport and communication classes, while 15·7 is the index of mortality for painters. It is to these figures he is referring when he says that the case of painters does not seem extraordinary. He then took out the death-rate per 1,000 from all causes of white males insured in the Industrial Department of the Metropolitan Life Insurance Company of New York, and compared them with painters in Australia. The figures there are based on a total number of deaths of 100,000 per annum, as against 20,000 to 25,000 per annum in Australia. The author of the publication containing these figures states that they are truly representative of the entire wage-earning population of the United States and Canada.

The figures may be summarised as follows:—

Age.	Death rate of Australian Painters.	Death rate of all white males insured with the Company.
15-24	2·6	4·8
25-34	5·2	9·2
35-44	9·0	15·9
45-54	17·6	23·6
55-64	36·0	40·0
65-74	85·0	80·0

He states then, "I think it is clear the death-rate of Australian painters are vastly superior to the death-rates of the wage-earning population of the United States as a whole." [P. 848.]

Professor Chapman then deals with these figures from the medical standpoint in the follows evidence:—

Q. With regard to the crude death-rate you say it is not permissible to compare these rates, to judge of the relative susceptibility to fatal illnesses? —On Mr. Sawkins' figures the death-rate amongst painters in the Commonwealth for the years 1909 to 1915 was 12·9 per 1,000 living painters,

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taken from the census of 1911. The death-rate of all occupations, excluding independent and indefinite, is 12.0 per 1,000 of persons living in those occupations. These are crude death-rates, and it is not permissible to compare them together for the purpose of judging of the relative susceptibility to fatal illnesses. If you do compare them together you are likely to be mistaken in your conclusions.

Q. You adopt Mr. Sawkins' own criticism of these figures, in dealing with them?—Yes.

Q. You are not at issue in any sense, but merely assent to the criticism?—I hold the same opinion as Mr. Sawkins, that you cannot compare these together.

Q. You go on to say that they may be compared as Mr. Sawkins has compared them?—Yes, in various ways. Mr. Sawkins has compared them in two ways. First, he determined the index of mortality of painters per 1,000 living, and he brought this out as 15.7. This is on the assumption that death-rates of painters for each age group are applied to the population distributed in the same proportion in age groups as those of all occupations.

Q. Is that 15.7 or 15.8?—It is really 15.7 in Mr. Sawkins' figures.

That is a much fairer figure to compare with the 12.0 than the 12.9 given by the crude death-rate, and that is the figure which should be compared in forming an idea of the relative amount of mortality amongst painters and those of other occupations. Instead of taking the 12.9, the crude death-rate, we should take the 15.7, the index of mortality. The other method Mr. Sawkins used was to determine the expectation of life. That, for painters at 20 years was 42 years, and that of all occupations at 20 years was 45 years. That is another way in which you can compare the figures together. In order to understand the meaning of these figures they have to be compared, as Mr. Sawkins has done, with the rates in various groups of occupation which make up the whole range of all occupations except independent and indefinite. The reason for that is if you take a very large number of persons and take an average figure for the whole lot of them, it represents the middle or mean figure, and lying inside the whole group of persons you have some (we are dealing with the death-rate) of higher death-rate and some of lower death-rate. In order to understand any other figure you are going to compare with that, it is well to know what is the range of variation in respect of that group. So taking that group of "all occupations" with a death-rate of 12.0, it is well to know what are the limits of the death-rates, the highest and the lowest. They range, as Mr. Sawkins has shown there, about 9.8 deaths per 1,000 living amongst the commercial classes to 15.3 deaths per 1,000 living amongst those of the combined group of transport workers and the industrial class (I accept what Mr. Sawkins has done, to combine these two groups together). The industrial class had a slightly higher mortality—I think 16 point something—and the transport workers had a slightly lower mortality, but he says there are good grounds for combining them, and I accept that. I regard that range as spreading from 9.8 to 15.3. Looking at the figures for painters, 15.7, I can see there is no excessive or extreme death-rate amongst painters as compared with the industrial class and transport workers generally.

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Now, coming to the expectation of life, from the figures supplied by Mr. Knibbs from time to time, we know that the expectation of life in Australia is increasing about two years a decade approximately—perhaps not quite so fast as that, but approximately so. Looking at it, we find painters appear to be a little more than a decade behind the average of all occupations, but I would like to point out, in regard to the expectation of life, just what has been done by Mr. Sawkins in regard to the crude death-rate. The expectation of life for all occupations is 45, but there is a higher expectation of life amongst the commercial classes and primary producers, and a lower expectation of life amongst the industrial classes and the transport workers. Painters have an expectation of life not dissimilar from that of those classes.

The mortality from lead-poisoning, which is always put into these tables, is an absolutely misleading mortality [p. 851]. If you want to get really significant figures for mortality, you expect them to be of the order of 2, 3, 5, 10, and 15 per 1,000 living. The mortality figures for lead-poisoning is .2, I think—one in 4,000 it was calculated out at. I see no reason at all in the face of those figures for prohibition; that is there is no significant mortality, taking painters as a whole, without considering whether the whole of their mortality is due to lead; but taking their mortality as a whole it is not dissimilar from that of the industrial classes group. As I say, the special figure for lead-poisoning is really, from the point of view of the cause of death, insignificant. Compared with the bulk of diseases with which one has to deal medically, these death-rates of killing one in 4,000 are nothing.

With regard to the mortality from tuberculosis, chronic Bright's disease, disease of the nervous system, and accidents, I think you have an excess of deaths table somewhere compiled by Mr. Sawkins. The mortality from those causes accounts, in my opinion, for the place of painters among the industrial class, and also accounts for the fact that the death-rate amongst painters is higher than the average death-rate of all occupied males. That is, if we want to account for the reason why painters are among the industrial class with a death-rate of about 15·7 instead of among all occupied persons with a death-rate of 12·0 that reason lies in the fact that there is a mortality from tubercle, from chronic Bright's disease, diseases of the nervous system, and accident. I do not think that the prohibition of the use of white-lead would remove that excess of mortality. Mr. Sawkins worked out an index of mortality in regard to tubercle. He prepared a statement showing the index of mortality from different diseases, and he showed that the mortality from tubercle among painters was practically a figure of the order of two—the index of mortality—as compared with one from all occupations from tubercle. I think that would probably remain. I have no doubt it would remain. I mean the lead has nothing to do with that.

DEPUTY-PRESIDENT: In which of Mr. Sawkins's exhibits do you find that?—I think it was one of the special exhibits he put in—the last table. He has a table showing the index of mortality, and he added two extra sheets the last time he gave evidence. This is a better figure to compare, really. It shows the index of mortality amongst painters from various causes of death, and we see there that, instead of taking these other figures, the proper way to compare them among painters, *i.e.*, supposing the death-rate

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occurred in populations similarly distributed, the death-rate from tubercle should be two with painters as compared with one for all occupations. Chronic nephritis would still cause an excess of deaths, and so would diseases of the nervous system. That would be due to the effect of turpentine. We cannot express that in figures. Accident, of course, would still cause the excess of deaths amongst painters, whatever it is, in the same way. Finally from the figures I would like to point out that there is no increase in mortality amongst painters; if anything, the evidence we have is that the rate is falling at the present time. For example, in 1920 you have eighty-six deaths in New South Wales. I think it has been established by evidence that there are about 7,000 painters in New South Wales, and that would give you a death-rate of about 12.2.

Whilst on this branch of the subject, it would be as well to carry the matter a step further and show how the insurance companies view the risk of illness incidental to the occupation of painters. This view is, of course, shown in their rates, compiled from the statistics of the companies. Mr. Wilson, secretary of the Accident Underwriters' Association, states that immediately after the passing of the Workmen's Compensation Act of 1910 the rate for painters was 30s. per cent. chargeable on the aggregate wages. That Act, of course, only compensated for accident, and it was not until the 1916 Act was passed that compensation was provided for in the case of lead-poisoning. In 1915, in pursuance of an all-round reduction, the rate of 30s. in the case of painters was reduced to 25s. 6d. On 1st July, 1917 (*i.e.*, after the Act of 1916), there was a further reduction to 20s. Under the 1920 Act the liability was increased 50 per cent., and the rate went up 33½ per cent., *i.e.*, to 26s. 6d. Mr. Wilson goes on to state, in regard to lead-poisoning, that he considers the members regard the risk merely as a normal one (317). He then proceeds to give the rates for the various occupations as follows:—Painters, 26s. 6d.; carpenters, 30s.; abattoir employees, 33s. 6d.; clerks of works supervising building operations, 30s.; builders not otherwise classified (*i.e.*, including carpenters, bricklayers, and other building trades), 30s., and numerous other rates set out on pp. 318, 319, and 320. Selecting those occupations more nearly resembling the occupations of painters, it is somewhat remarkable that the rate for painters is lower than any of the others. Following on this, the executive committee of the Underwriters' Association were examined as a committee, and in effect their evidence showed that the companies regarded the risk from lead-poisoning in the occupation of painters as quite insignificant.

The inference deducible from these figures is analagous to that deducible from all the other figures in the case.

The fourth heading under which evidence was adduced in the inquiry was the scientific medical knowledge of the subject. I do not intend to deal with this evidence in detail except so far as it leads up to the remedies suggested for removing the dangers in the occupation incidental to the use of white-lead.

Dr. Smith and Professor Chapman have both given a short account of the subject of lead-poisoning and lead absorption from the medical standpoint, but this was done chiefly to place in its proper position the more detailed evidence which they were subsequently to give in regard to chronic Bright's

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disease and tuberculosis. It is also of importance, however, in considering the proper safeguards to be applied as a preventative against the evil consequences of the use of lead in paints.

Before dealing specifically with this subject I desire to point out that at no stage of the inquiry was it ever contended that the use of lead in paints was entirely free from danger, but it is claimed as a result of the figures given by the big public institutions and of the statistics supplied by Mr. Sawkins taken in conjunction with the medical evidence upon the subject that these dangers are by no means of sufficient importance to justify any extensive interference with its use in the industry.

It has already been pointed out that the minor illnesses of painters, such as colic, headache, rheumatism, and, to a very considerable extent Bright's disease, are due to turpentine.

Lead, however, may cause some of these illnesses, and for this reason it is obviously important in ascertaining the proper remedies to be applied to consider the modes by which lead may be taken into the system.

It seems to have been generally accepted that the most frequent and the most dangerous of these is the inhalation of lead particles through the respiratory organs into the lungs. The less important and less dangerous mode is through the alimentary canal into the stomach.

The ingestion of lead through the alimentary canal is a matter susceptible of such simple remedies that a few words will suffice to completely deal with that part of the subject.

Ordinary cleanliness, such as proper washing of the hands and overalls, and possibly the prevention of smoking during the actual operation, would completely remove the danger, such as it may be, of taking in lead in this manner.

As to the inhalation of lead particles into the lungs, however, a question of greater difficulty presents itself. The matter of prime importance in this connection is the prevention of lead dust being breathed into the body. The whole of the evidence shows that the taking in of dust could only occur during the process of dry rubbing down and dry sandpapering.

It is only in this connection really that the use of lead in paints could be regarded as dangerous at all, and this question deserves most careful consideration, first on humanitarian grounds, and secondly because of the importance of the dry rubbing down and dry sandpapering in turning out satisfactory work. The importance of the process has been fully established, especially in the matter of coach and carriage painting, and if adequate safeguards can be devised for its use, the industry should not be deprived of a process so conducive to satisfactory results.

On the question of adequate safeguards, no reason appears to exist for doubting the efficacy of the methods recommended by Professor Chapman. He suggests [p. 863] in all cases where there is danger of inhaling the dust that a through draught of air should be created sufficient to carry away the dust and thereby prevent any ill-effects to the operative. He proceeds in his evidence [p. 864]: "They have not got to get an air current of very great speed to remove that dust altogether, and I think that if rubbing down is done under those conditions with a proper ventilation through the room, you will get every advantage that you will get with a mechanical

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means of ventilation." A draught of 40 feet per minute, he states, is ample for carrying away the dust. In regard to outside painting, of course, this safeguard exists in the natural order of things. In regard to inside painting, Professor Chapman thinks that if the men were educated up to an understanding of the necessity for a draught of air during operations causing dust, it would be quite simple by the mere opening of doors or windows to apply an adequate safeguard against any dangers that exist.

As suggestions will be made later for safeguards against the risks of the industry which are not directly connected with the details of the medical evidence, I shall leave this subject for the moment and summarise the suggested remedies later on.

I have already dealt with the evidence tendered to support the suggestion that the use of white-lead was dangerous and should be prohibited, and shown that the evidence, far from supporting this suggestion, proves that it is quite unjustified. I now pass on to the next class of evidence given in support of a theory that the use of white-lead was unnecessary as there were thoroughly efficient substitutes in the paints with a zinc oxide base. Care should be exercised in a consideration of this class of evidence for two very obvious reasons—(1) that the supporters of this theory are usually people whose aim is to advertise their own paints, and (2) because very likely the theory derives a good deal of encouragement from countries whose zinc oxide products would soon swamp the markets of the world if white-lead paints were abolished.

Apart from these matters, however, and dealing with the question purely on the evidence given, one may assert with confidence that it has been clearly established, in regard to outside painting at any rate, that no efficient substitute exists for white-lead paints. This fact is due very largely to climatic conditions in Australia. It may further be asserted that for interior work the class of paint most suitable varies according to different surfaces, and the final result of the evidence seems to be that paints not containing lead are quite satisfactory for surfaces on which kalsomining or papering would otherwise be used, but in all other cases lead paints have not yet been superseded by any efficient substitute.

It is unnecessary to examine all this evidence in detail, but I should like to point out that the evidence in support of the conclusions enumerated above was given by persons who had no interest to misrepresent the case in any way, and whose business would not be affected whichever class of paint they were compelled to use.

Before concluding this address, I desire to say on behalf of my clients, that it is impossible to read through the evidence without seeing that, although the painting industry contains no risks other than ordinary trade risks, there are certain respects in which some common-sense regulations might have a most beneficial result on the health of the operatives in the industry.

1. Dealing with the more serious cases first, Dr. Chapman suggests that some persons are much more susceptible to lead than others, and in respect of these it is obvious that it would probably do away almost

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entirely with the greater portion of the serious cases if a person who once became affected with plumbism could be thereafter excluded from the industry. Care should, of course, be exercised in carrying out such a regulation to make certain by reference to a specialist that such cases were really cases of plumbism proper.

2. A corollary of this would be a regulation requiring compulsory notification of illnesses. Here again, the regulation would be useless unless in cases of lead-absorption and lead-poisoning the original diagnosis of the general practitioner were confirmed by the opinion of a specialist.
3. For purposes of effectively carrying out (1) and (2) a system of compulsory registration of operative painters should be inaugurated, and possibly also of master painters.
4. Regulations should be made for the enforcement of the rules of ordinary personal cleanliness on the lines frequently referred to in the evidence.
5. Regulations should be made requiring the creation of a through current of air, as suggested by Professor Chapman, during interior operations causing dust.
6. A system should be instituted of educating the operatives themselves up to an appreciation of the fact that an observance of the suggested preventive regulations would render them practically free from illnesses resulting from the following out by them of their occupation.

It is respectfully submitted to the Board that the adoption of some such regulations as these suggested would amply provide against any of the risks of illness incurred by the painters while engaged in their occupational work.

ADDRESS BY MR. M. J. CONNINGTON.

Industrial Advocate for the Operative Painters and Decorators' Union of Australia.

QUESTIONNAIRE.

1. In view of the fact that it is now technically possible to replace white-lead in painting by efficient substitutes, are you of opinion that a draft convention, prohibiting the use of white-lead in painting, should be submitted to the Conference?

2. If so, do you consider that a period should be allowed before the prohibition would come into force? Please indicate what period you think necessary, and why.

3. What measures of supervision and control in the application of this prohibition do you suggest?

4. If your Government does not approve of a draft convention prohibiting the use of white-lead in painting, what measures do you propose in order to meet the dangers arising from its manufacture and use?

The terms of this quotation suggest that the use of white-lead in painting is admittedly dangerous to health, and that the time has arrived when consideration should be given as to whether its further use for that purpose should be permitted.

The subject of poisoning by lead is a question which has exercised the minds of eminent medical authorities throughout the world. Their views, which have been given after much investigation and many experiments, are recorded in various text books which deal with diseases attached to various occupations. All of these authorities have expressed the opinion that the use of white-lead in painting is dangerous.

The following passages will serve to show the views of these authorities:—

Kober and Hanson [p. 115.]

This is regarded in all countries as the most important of the lead industries, for it employs a large number of men, and, as it is a skilled and well-paid trade, men do not drop out of it at the first attack of illness, but usually keep on till actually incapacitated. It is harder to control conditions in the painting trade than in any other lead trade, and therefore while industrial poisoning has been greatly diminished in other occupations, there has been no falling off in this trade in Germany or Great Britain.

[Page 116.]

The most dangerous branches of this industry in our country are: interior house-painting, ship-painting, and certain parts of carriage-painting, because these all involve the dry sandpapering of white-lead paint, which dust-producing work is the most prolific source of lead-poisoning among painters. The safest branches are the painting of farm implements, of farm waggons and of automobiles, when this is done on a large scale, for hand work has given way to dipping by machinery, and only the final decorating needs brush work. In smaller carriage and automobile shops, and in the painting of railway coaches, hand work persists, and there

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may be much sandpapering, especially on the wheels, and in painting white milk carts, and the walls of toilet rooms in Pullman cars.

The prevention of lead-poisoning among painters is fraught with much difficulty when the work is done outside a factory. House-painting is often done in buildings where the water has not yet been turned on, and there is no way for the men to wash properly before eating their lunch. In factories where this could be provided the arrangements are almost always quite inadequate. The dry sandpapering of lead-paint is forbidden by law in several countries, and it would be a simple matter to do away with it if the men could learn to use a cheap mineral oil to moisten the paper and catch the dust. The national trade-union has already taken it up, but many coach and carriage painters are outside the union, and they need legal protection.

Thomas Oliver [pages 333 and 334].

House-painting.

House-painting is a prolific cause of plumbism. Dr. Stuhler, of Berlin, who obtained his facts from benefit societies, states that of 3,000 painters in Berlin, 313 or 0.14 per cent. were annually off work from the effects of lead-poisoning. In Paris, Gautier found that out of 14,000 painters and varnishers, 250 on an average attended the hospitals on account of plumbism, and that an equal number was treated at home, making a total percentage of 3.5. Of late the admissions into the hospitals of cases of lead-poisoning have been increasing, notwithstanding the regulations issued by the French Government, and the fact that the patients coming from white-lead works have been getting fewer. This circumstance is explained by other industries sending more patients than formerly, and of these industries house-painting has contributed the largest number. During the years 1894-98 this trade alone, and colour-grinding, contributed 223 patients, while white-lead works only sent 4, and the occupation of plumbing 22. Of 86 fatal cases of lead-poisoning in Paris during the five years mentioned, 43 occurred in painters, 2 in plumbers, and only 1 in a white-lead worker. In consequence of the large amount of plumbism that prevails among house-painters in Paris, it is Gautier's contention that the occupation should be brought under closer Government supervision. The same remark applies equally to the trade in our own country. Lead-poisoning among house-painters is much more prevalent than people imagine.

Rambouesk [pages 132 and 133].

Use of Lead Colours and Paints (House-painters, Decorators, &c.).

Use of lead colours, especially by painters and decorators, causes relatively much lead-poisoning. Apart from ignorance of danger on the part of the worker, and lack of personal cleanliness, unsuitable methods of working add to the danger, especially dry rubbing of painted surfaces, which gives rise to much dust containing lead. Again, the crushing and mixing of lumps of white-lead and rubbing lead colours with the hand are very dangerous.

It may be contended that these references have application to the experiences of other countries, and therefore cannot be taken to imply that similar

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conditions obtain in Australia. I do not think, however, that such contention carries much weight, and nothing put forward in the present inquiry supports that theory.

The Use of White-lead in Painting in New South Wales.

Of the total painting work done in New South Wales the greatest portion is done by house-painters. The conditions under which house-painting is carried out are dissimilar to those usually obtaining in the case of ship-painting, and car and carriage painting. The dissimilarity may be said to be almost entirely due to the fact that the house-painter frequently works alone, or in very small groups, and the exigencies of trade necessitate frequent changes in the location of their work. The investigations in other countries go to show that the incidence of lead-poisoning in house-painters is considerably greater than in the case of other workers, and the evidence given in the present inquiry goes to indicate that the same conditions obtain in New South Wales.

That a genuine fear exists in the minds of the workmen of the use of white-lead in painting is borne out by the fact that the question of the unhealthy nature of their occupation has been referred to before Wages Boards, and made the subject matter of investigation and decision by the trade organisation covering the trade.

In 1918 the Painters' Union, of which Mr. O'Brien is secretary, appointed a committee to investigate the use of white-lead in painting, and this committee, after considering the subject, carried a resolution disapproving of its use in painting.

A document (*Exhibit "P"*), prepared by Mr. O'Brien, was before this committee and adopted by them. This document in the main reproduced reports of medical authorities as taken from various text books which dealt with the subject of "Occupational Diseases." These authorities included Dr. Legge, Dr. Kaup (Germany), Dr. Rambouesk (Austria), Dr. Collins and Dr. Kenneth Goadby (England), and Dr. Koeber and Dr. Alice Hamilton, of America.

All were in agreement that white-lead was dangerous to health, and that the danger mostly arose in connection with the operation of "rubbing down," which is apparently an indispensable practice in relation to the work of painting, and particularly house painting.

The evidence in the inquiry showed that the practice of "rubbing down" is universally followed in New South Wales, but does not give any practicable suggestion as to how the evils attached to the process are to be obviated or substantially reduced.

In the document prepared by Mr. O'Brien one finds invaluable information in regard to investigations and records of other countries as to cases of lead-poisoning amongst house painters. These go to show that the prevalence of the disease and the mortality arising therefrom is greater amongst house-painters than is the case in other occupations.

The fact that such consequences have followed the use of white-lead in painting in other countries cannot be overlooked by this Board. It may, of course, be contended that the findings of other tribunals or medical

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authorities elsewhere are not binding on this Board, but I respectfully submit that such contention cannot reasonably be regarded as containing any meritorious value.

It may also be argued that the Board should not take cognisance of the views of the workmen as expressed through their organisation or their secretary, but such argument carries little weight because the workman is not at all concerned in the matter of the material which he has to use, excepting so far as it affects his health or well-being. He is in all respects a disinterested party, and it will require substantial proof to the contrary before he can be otherwise regarded. Seeing, therefore, that the workman uninfluenced by any ulterior motive, has given pronouncement to his objection to the use of white-lead, it seems to me that the case confronting those who favour the continuance of its use for such purpose is a particularly formidable one, especially when considered in conjunction with medical reports, and the trend of modern times to regard the protection of human health as being predominant to all other considerations.

If corroboration were needed as to the sincerity of the painter's belief that the use of white-lead is injurious to his health, the evidence of witnesses called by the union, also that of Mr. Courtenay (manager, "Key-stona" Company), page 707, will, I respectfully submit, prove ample for such purpose.

Evidence of Poisoning by Lead.

The evidence of the six witnesses called by the union and the returns of 120 painters showed that cases of lead-poisoning have occurred. With regard to the returns they unfortunately were not sufficiently comprehensive in detail to warrant action being taken on them, still they can be regarded as having some bearing on the issue.

The returns showed that 120 men claimed to have suffered from lead-poisoning, and in forty instances to have contracted the complaint in this State. These returns and other evidence, if taken in conjunction with the unqualified offer of the Union to submit all its members for examination, must be regarded as strong presumptive evidence of the workmen's belief that the use of white-lead has proved harmful to health and the continuance of its use constitutes a real danger.

The offer of the Union cannot, I respectfully submit, be lightly passed over, nor can it be reasonably contended that a large body of workmen are suffering delusion. There must be some cause for them holding the opinion that the use of white-lead is harmful. I think the explanation is shown in the evidence of the witnesses. "They are frequently indisposed whilst at work." "Their medical advisers inform them that their occupation is responsible for some of the complaints they suffer from." It may be in some cases that the advice tendered is not well-founded, but in the main I think the opinions, coming from medical men, cannot so be regarded.

I am prepared to admit that the duty of determining whether or not the use of white-lead in painting should be prohibited is a particularly onerous one, and that the task is made much more difficult by reason of the fact that there is no statistical data as to the prevalence or otherwise of the disease. Still there is some direct evidence that cases of lead-poisoning have occurred

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during the past three years, and there is the strong presumptive evidence that the Union believe that evidence of its existence in various forms is fairly common amongst the workmen. These factors, judged from the standpoint of public health, must, I submit, carry great weight with the Board.

It is well known that the Legislature in the interests of human life have enacted many measures, and the justification for so doing has not had to run the gauntlet of legal argument as to its weight and admissability. For instance, the following measures, viz.:

Prohibition of the use of opium in smoking.

Prohibition against females operating certain machines.

Factory laws regarding children and females.

Prohibition of the use of sacks containing over 150 lb. weight, &c.

In each of these instances the financial interest of some person was affected, and the most that can be said by those who favour continuance of the use of white-lead in painting is that a judgment against its use would similarly affect their interest.

I respectfully submit that it cannot be seriously said that painting cannot be done without white-lead being used, nor can it be said, in view of the medical evidence and other evidence given in this case, that the use of white-lead in painting is not injurious to health, and has not proved so in a great number of cases. I therefore think that I can fairly ask the Board to recommend the discontinuance of the use of white-lead in painting.

Experience of other Countries.

In a work entitled "Diseases of Occupations and Vocational Hygiene" (Kober and Hanson) much space is devoted to the matter of the prevalence of lead-poisoning amongst painters. On pages 80 and 81 under the occupation "Painters" the following remarks are set out:—

"Industrial lead-poisoning claims fewer victims now than formerly:

During thirteen years 1900 to 1912 inclusive, there were reported to the Home Office as having occurred in white-lead factories 1,393 cases of plumbism with thirty-three deaths, equal to 2.2 per cent. If the total number of cases of plumbism notified to the Home Office as occurring in all trades be taken there were during the thirteen years already mentioned 8,523 cases with 394 deaths, or a percentage of fatal cases of 4.5. During recent years there has been a greater reduction of fatal cases of plumbism among white-lead workers than in any other lead process, largely in consequence of the regulations issued and enforced by the Home Office. In 1900 the largest number of cases of plumbism occurred in the white-lead trade, viz., 358 with six deaths; in earthenware and pottery manufacture 200 cases were reported with eight deaths. In 1912 the manufacture of white-lead no longer occupied the first place in the list. This position was taken by the earthenware and pottery industry. In coach and house painting the number of cases of plumbism has risen largely owing to the prosperity of the motor-car industry. House-painters suffer from plumbism mostly through inhaling dust given off during the sandpapering surfaces or from the vapour given off during the burning-off of old paint preparatory to repainting. In

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the case of persons who have become ill by sleeping in newly-painted rooms opinions have somewhat changed as to the cause of their indisposition. Until recently it was thought that the symptoms were those of plumbism, and where a blue line was present in the gums of those who were ill the diagnosis was probably correct. On the other hand, the symptoms, severe headache, nausea, and retching, developed too soon after exposure to paint for lead to be their cause. The symptoms must, therefore, be due to the inhalation either of the vapour or turpentine alone or combined with emanations from the linseed oil. Baly, of Liverpool, attributes the malaise to the inhalation of certain aldehydes given off by lead paints. He found that lead-oxide gave off more 'insaturated aldehyde' than lead-carbonate. Henry A. Gardner did not find any metal present in the vapours given off by lead-painted surfaces. These vapours contain varying percentages of carbon monoxide and carbon dioxide, to the former of which he thinks the headache, vertigo, and retching may be ascribed. Under certain conditions, where traces of sulphuric acid are present, carbon monoxide is given off. In the blood taken from the heart of a guinea-pig, which I had exposed to vapours from a freshly-painted surface, the spectroscope showed the presence of carbon monoxide."

"Between 1900 and 1909 there were reported to the Home Office 1,973 cases of lead-poisoning with 380 deaths of house-painters. Paralysis of the hands and fingers is extremely common in house-painters. Tancquerel des Planches found paralysis present in 8 per cent. of lead-poisoned French house-painters, Teleky in 14.5 per cent. of Austrian painters, and Legge in 22.7 per cent. of British house-painters. In the United States it was found that one in every six painters gave a history of having had plumbism in one form or other, in other words 16.6 per cent."

On pages 115-117 of the same work the following appears:—

"In the United States it is impossible to make any statement as to the amount of lead-poisoning for which the painters' trade is responsible. All we can do is to gather scattered bits of information from various sources. The Illinois report has 157 painters among 578 cases from all trades, or 27 per cent. Pratt's report of 109 cases includes no less than forty-two painters. Andrews quotes the record of one New York hospital in which fifty-nine cases of plumbism were treated, twenty-eight of them painters, and the proportion among his sixty fatal cases was even greater, forty or two-thirds. A local district council of the national trade-union sent out a questionnaire to its members asking among other things as to the history of lead-poisoning. Of 1,009 who answered 185 gave a history of lead-poisoning and seventy-two a history of kidney trouble, seventy-seven of rheumatism, twenty-seven of chronic stomach trouble."

"In order to gain some idea of the extent of lead-poisoning in the trade E. H. Hayhurst made a thorough examination of 100 able-bodied painters, and found fifty-nine of them with evidence of chronic plumbism. A hundred histories of lead-poisoned painters showed a high proportion of severe cases, 39 per cent. of palsy, 9 per cent. of encephalo-

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lopathy, 8 per cent. of general arteriosclerosis. The period of exposure before illness begins is longer in painters than in most lead trades. Only nineteen out of forty-eight men had worked less than a year, twenty-one over ten years."

Further reference appears on pages 515 to 517 inclusive, *i.e.*:—

"Hoffman's Industrial Insurance Statistics show that of 2,783 deaths among painters 23.8 per cent. were caused by tuberculosis and 9.9 per cent. from other respiratory diseases, making a combined rate of 33.7 per cent. from diseases of the respiratory organs; the rate from lead-poisoning was 1.5 per cent.; from nervous diseases 10.7 per cent.; from heart, kidney, and liver diseases 25.9 per cent. The German figures cited by Fleck are 41.6 per cent., 1.3 per cent., 7.8 per cent., and 20.8 per cent. respectively. The Leipsic Sick Benefit records show 1,017 days of sickness a year per 100 members, and a mortality hazard of 0.72 per cent."

"The danger from arsenical and mercurial pigments has been pointed out on pages 2, 126, 486. Lead-poisoning among painters has long since characterised this occupation as a dangerous trade. Koelsch, in a careful study of 5,000 painters in Munich, found that only 8 per cent. were over 50 years of age; the majority were between 16 and 40 years of age. Of this number 13.83 per cent. had experienced symptoms of lead-poisoning; one-third had suffered from more than one acute attack. Colic occurred in about 85 per cent. of the cases, lead palsy in 3.5 per cent., joint affections in 2.7 per cent., sciatica visual disturbances, renal involvement and gout in about 2 per cent. of the cases. Cases of lead-poisoning involving the brain were not encountered, since the physical examination was limited to actual workers; the hospital records of Munich show, however, a proportion of 5.5 per cent. About 29 per cent. of all the workers examined showed objective or subjective symptoms of lead-poisoning; 11.8 per cent. revealed the characteristic gum lines; 6.5 per cent. were anæmic; digestive disorders, headache, tremor, dizziness, circulatory and kidney disorders and rheumatic affections were not infrequent.

"Koelsch's general percentage corresponds very closely with the results obtained by the Illinois Commission on occupational diseases for 1911, which show that of 578 cases of lead-poisoning 27 per cent. were painters. The statistics of Pratt and Andrews, cited by Dr. Hamilton, indicate a higher percentage. The average age of 1,388 painters, decorators, and paperhangers in Chicago, in 1911, was 41 years and 3 months. It is of interest to note that the painters examined by Dr. Hayhurst were encouraged to state what they considered the most unhealthful feature of their work, and ninety-nine out of 100 mentioned the lead-paint dust from sand-papering, seventy complained of benzine, sixty-four of turpentine when used in close quarters, and nearly all stated that the fumes of benzine and turpentine in hard oiling made them sick temporarily. Three of the men had been victims of wood alcohol blindness, contracted while working in brewery vats.

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"Hayhurst, in his Chic Survey, reports 154 cases of lead-poisoning, three from benzine and naphtha, two from turpentine, and one each from varnish and wood alcohol.

"It has been shown by Gardner that drying paints emit no metallic vapours, but they may evolve benzol formic acid, aldehyde substances, carbon dioxide, and carbon monoxide, and while all are more or less harmful he very properly maintains that carbon monoxide may be a fruitful cause of anæmia among painters. These conclusions naturally suggest the need of copious ventilation."

Then again, on page 518, further reference is made, viz.:—

Sand-papering of Lead-painted Surfaces.

"This is universally acknowledged to be the most important cause of lead-poisoning among painters, as the evolution of dust by dry sand-papering or rubbing with pumice stone naturally favours inhalation or ingestion of dust containing lead or other toxic agents. It is believed also that the sharp angular character of sand or pumice stone dust renders the mucous membrane vulnerable, and hence more susceptible to the absorption of toxic dust.

"The removal of oil paint by means of benzine, wood alcohol, compressed air, chipping, or scraping, is equally dangerous work, especially when this has to be done in confined spaces, notably between the outer and inner shell of steel ships. Burning off the old paint by means of a small gasoline torch is a safer method, as there is little or no danger from lead fumes, unless the workman permits the flame to play long enough on the surface to volatilise the lead and produce a decided smoke, in which case particles of lead may, in the opinion of Prof. Stieglitz be carried off mechanically with the smoke. The inhalation of lead dust from dirty drop cloths and overalls is doubtless a frequent cause of plumbism among house-painters and decorators. And for obvious reasons the men should also be careful not to expose their street clothing to lead-containing dust.

"The ingestion of lead through unwashed hands, &c., while eating, drinking, smoking, or handling tobacco and pipes, is naturally a frequent cause of plumbism. While every painter knows that 'hot water and soap and time enough to use them' are important protective measures, the fact is that these facilities, except in shop work, are not always available. In new construction work and vacant houses the water may not be turned on, and the workman is obliged therefore to clean his hands with benzine, turpentine, &c., provided for cleaning the brushes, and those who fear that these agents drive the lead into the pores of the skin simply resort to a piece of rag, cotton-waste, or paper for the removal of gross particles of lead.

"The liability to accidents, such as falls from ladders and scaffolds, is not inconsiderable, and house-painters are likewise exposed to electric shocks from overhead wires. Exposure to the elements doubtless play an important role in the causation of catarrhal and rheumatic affections and diseases of the respiratory organs. Pneumonia, according to Hirt, is more common among house-painters than in decorators and var-

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nishers. Diabetes is reported by Rosenfeld as not uncommon. Affections of the eyes from exposure to dust, toxic fumes, &c., are likewise quite frequent, and dental and gastric diseases are equally common. See also diseases of the circulatory organs, arteriosclerosis, and diseases of the kidneys. Flat-foot, knock-knee, and varicose veins as a result of prolonged standing, are not uncommon, and housemaid's knee has been noted among men who make a specialty of painting or polishing floors. Callosities of the palm of the hands and inflammatory affections of the skin of the hands and arms, caused by turpentine and petroleum products, are not infrequent."

The passages referred to show that in addition to plumbism a painter is subject to contract many ailments, notably—

- (a) Paralysis of the hands and fingers.
- (b) Tuberculosis.
- (c) Nervous diseases.
- (d) Heart, kidney, and liver disease.
- (e) Rheumatic affections.
- (f) Anæmia.
- (g) Pneumonia, common amongst house-painters, &c.

The statistics given in this book provide much food for thought, sufficient, I venture to submit, to inspire one to look around for a remedy in the interests of the community quite apart from the health point of view of the workmen themselves.

The harmful effects of lead-poisoning and the prevalence of the complaint has reached a stage throughout the world that comments in respect of the ravages it makes on the health of the workmen are freely expressed. In Vol. 120, "United States Bureau Labour Statistics" on page 47, will be found the following:—

"U.S. Bureau Labour Statistics.

"There is also a large proportion of severe cases and a similar proportion of mild cases among the painters who suffer from plumbism. When any of the cases reported are from the other lead industries the following shows:—

"Per cent. of cases of plumbism of each specified description
in Great Britain.

Industry.	Severe.	Moderate.	Mild.	First Attack.	Second Attack.	Third Attack.
Coach Painting.....	26·0	27·6	43·2	59·8	18·7	16·8
Painting in Other Industries.....	31·4	23·9	43·0	58·8	20·5	17·5
Ship Painting	35·6	19·5	41·4	69·0	17·5	9·2
Average for Other Lead Industries	28·2	24·7	44·7	67·4	15·5	13·4

On page 49 of the same volume the following appears:—

"In Bulletin No. 95 Bureau of Labour, J. B. Andrews quotes the record of one New York hospital, in which fifty-nine cases had been treated, twenty-eight of whom, or a little less than one-half, were painters. Among the sixty fatal cases of industrial poisoning studied by Dr. Andrews, forty or two-thirds had been painters, showing apparently that the form of lead-poisoning from which painters suffer is above the

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average in severity, for the proportion of painters among the fatal cases in New York is higher than the proportion among hospital cases.

"This accords with statistics in other countries, and must not be taken to mean that the painters' trade is the most dangerous of the lead trades, but rather that the men remain longer tradesmen and cling to their occupation as long as possible."

Further on, on page 66, it gives another article relating to investigation amongst hospital patients:—

"U.S. Bureau Labour Statistics."

"A study of hospital reports from four cities shows that one-fourth of the hospital cases of lead-poisoning in these cities were painters. In New York City the proportion is even greater. Forty of sixty fatal cases of lead-poisoning in New York were painters. Among 1,009 painters in Chicago who sent answers to a list of questions 185 gave a history of lead-poisoning, seventy-two of kidney trouble, seventy-seven of rheumatism, twenty-four of stomach trouble; 100 able-bodied painters presented themselves for physical examination by a specialist in occupational diseases, who found that fifty-nine of them showed evidence of chronic lead-poisoning.

"The total prohibition of lead-paint for use in interior work would do more than anything else to improve conditions in the painting trade." The facts show all too clearly how harmful its use has proved to be.

Insanity amongst Painters.

In his work entitled "Dangerous Trades" the well-known authority on occupational diseases says [page 308]:—

"The question of insanity in lead workers has been very ably dealt with by Dr. Robert Jones, the Medical Superintendent of the London County Asylum, Claybury, Essex. Taking the proportion of one lead worker in the broad sense of the word, to every fifty-eight of the adult population, there ought to be in Claybury eighteen male patients belonging to that class. As a matter of fact, however, out of 1,050 males in the asylum there are thirty-five who have been lead workers, plumbers, painters, and glaziers, but excluding pottery workers and miners. In examining the histories of 3,500 male patients admitted into Claybury, Dr. Jones found that of these 133 were artisans, who, in their trade, had possibly become impregnated with lead. Their occupation was as follows:—

Painters	75
Decorators	13
Plumbers	18
Gasfitters	13
Labourers in lead works..	6
Grainers	3
Gasmeter-makers	2
Colour-grinder	1
File-cutter	1
Tea lead-roller	1

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"Of these nineteen had signs of lead-poisoning upon admission, such as paralysis, colic, and blue-line on gums, while in twenty-two there was a history of convulsions (encephalopathy), headache, giddiness, and paralysis. Of the 133 cases the following is the analysis of their mental condition:—

Mania	37
Melancholia	33
Dementia	19
Dementia with epilepsy	10
Dementia with general paralysis	24
(?) General paralysis	7
Alcoholic mania	3

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"As to the prevalence of insanity, due to plumbism, Dr. Eric Sinclair, Inspector-General of Mental Hospitals, New South Wales, caused a search to be made of the records of Callan Park Mental Asylum, and found that amongst the patients (3,085) who had been admitted to the institution from January, 1910, to June, 1921, were the following:—

Plumbers	33
Painters	46
Miners (exceptional miners)	37
Printers	18
Plasterers	1
Metal workers	2
Metal polishers	1
Labourers	1

"Of these cases plumbism was only evident in ten instances—five cases definitely and five doubtful. From this the doctor expresses his opinion as follows:—

"It would seem, therefore, that so far as this State is concerned, plumbism as a causative factor in insanity has but little incidence.

"These aggregate figures substantially correspond with those obtaining at Claybury. Apart from the question of plumbism the percentage of painters and plumbers afflicted appears to be comparatively high when compared with their numerical relationship to the rest of the community."

In the same work, on pages 337-338, an article appears on "Lead-poisoning" amongst coach-painters:—

"Coach-painting.

"Lead-poisoning in coach and carriage painters is far from being rare. In the painting of carriages there are often as many as eighteen coats of paint and varnish applied. Frequently the work is done in rather close and very ordinarily-ventilated places. In Newcastle it is the practice of large firms of coach-makers to give a carriage three coats of primary paint, six of filling up, three or four of oil colours, two of varnish colour, *i.e.*, oil and varnish mixed, and finally about four coats of varnish. The colours used are white-lead, dry and ground in

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oil, lamp black, ultramarine, yellow chromes, zinc white and others known by particular names in the trade. "Driers" are also used, such as sugar of lead and terebene. Coach-painters become the subjects of plumbism chiefly through inhaling the dust when sandpapering to get a good surface. They suffer from colic and wrist drop. Many of the cases approach in severity the lead-poisoning of fire-cutters. Dr. Morrison Legge states that the percentage of chronic plumbism among coach-painters is greater than among file-cutters.

"Several cases of plumbism have occurred in the painting of new carriages, also in the breaking up and burning of the wood of old railway carriages. Thirty-four of the cases of plumbism reported during 1900 as having taken place in coach-builders occurred in men engaged in railway shops.

"It is almost unnecessary to repeat that in all places where lead paints are being handled and used, as in workshops, factories, ships, and dockyards, there should be adequate washing accommodation, with plenty of soap, towels, and nail-brushes, and sufficient time ought to be given to the men to wash before leaving work."

That there is grave ground for the belief that the use of lead paint for car and coach painting has caused sickness, and perhaps poisoning in certain cases, is shown by the evidence of Mr. Flanagan (Secretary, Coach-builders and Coach-painters' Society).

In the State of Queensland there has been considerable agitation by representatives of the British Medical Association to secure the prohibition of the use of white-lead in paints, and their representations in this regard have been published in the *Brisbane Daily Standard* and the *Brisbane Courier*. These reports read:—

Brisbane Daily Standard—12th July, 1918.

Lead in Paint should be Prohibited.

Doctors Interview Home Secretary.

"Representatives of the British Medical Association, including Drs. Dods, Gibson, Mathewson, Thelander, and Hemsley, waited on the Home Secretary this morning, urging the inclusion of a provision in the Health Act prohibiting the use of lead in paints used on fences, verandah rails, or those parts of a house within reach of children.

"The president of the Association (Dr. Dods) made the alarming statement that lead-poisoning was frequently the cause of blindness in children, death of infants, paralysis and deformities, and of the high death-rate in Queensland due to 'eclampsia' in pregnant women. It was also the cause of the death-rate through kidney disease of early adults.

"Dr. Thelander said that adult workers in the Blind Institution gave indication that in childhood they had been affected through lead. In France and America legislation was being introduced prohibiting the use of lead in paint for that reason.

"The deputation suggested the use of zinc paint, pointing out that it was not injurious to health, and though more expensive is also more durable. It was further stated that barium might possibly be a useful

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substitute, and the doctors asked whether it would not be possible to have school buildings oiled instead of painted.

"Mr. Huxham, in the course of a sympathetic reply, promised to consult the Commissioner for Health on the matter before coming to a final decision."

Brisbane Courier—15th April, 1921.

Lead-poisoning.

"That action should be taken to prevent the occurrence of lead-poisoning in children is the opinion held by the Minister for Works and State Enterprises, who said yesterday that he understood the matter was in the hands of the Home Secretary with a view to legislation being passed. *Mr. Forgan Smith said that Germany, France, and Switzerland, before the war, had effective legislation governing the use of lead, and in France its use was prohibited unless by the permission of the authorities.* He had seen a draft of certain proposed legislation in New Zealand, but was unaware whether it was enacted. That many children in Queensland suffered from lead-poisoning was due to the fact that the great heat of the sun dried the oil out of the paint, *leaving the lead in soluble form. Verandah rails and fences were dangerous to children who rubbed their hands along them, and the lead adhering to them in powdered form finally found its way into their system and injured their eyes.* This was recognised by the Brisbane branch of the British Medical Association, which some time ago made certain representations on the subject, and with the representatives of which he (Mr. Smith) had consultations. The branch recommended that the use of lead in paint within the reach of children should be entirely prohibited, and also that dry rubbing down should be prohibited in the interests of the man engaged in the calling. The Minister said, further, that householders should pay strict attention to the state of their fences, verandah railings, &c. The use of a large percentage of zinc oxide delayed the process of 'chalking' and was not so detrimental to good health."

Evidence of Paint Manufacturers.

The evidence of the paint manufacturers in New South Wales makes plain the serious risk by employees engaged in the business of manufacturing paint, and the precautions taken by these employers to safeguard the health of employees shows that the employer is fully alive to the dangers attached to the business conducted by them.

The question before the Board, however, is not limited to factory work. The evidence, so far as it refers to factory work, might possibly be taken as sufficient to justify the continuance of operations in these places, but it does not in any way hold towards finding a solution as to how the risks run by the painters are to be overcome.

The evidence as to the precautions taken to safeguard the health of employees engaged in the manufacture of paint is very pleasing to hear, and the employers concerned are entitled to commendation for the consideration and sense of responsibility shown by them. Still, as before stated, such evidence is not strictly relevant to the main question for decision, and

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does not provide a remedy for the ills complained of by the house-painter. There can be no doubt that a prohibition against the use of white-lead in painting might inflict serious financial loss on these employers, but such considerations, I submit, should not weigh with the Board, if it finds that the use of white-lead is detrimental to health, and the risk in that regard is unavoidable.

Evidence on behalf of Mine-owners.

Whilst admitting that a large amount of capital is invested in the undertaking, and, for the purpose of my argument, agreeing that considerable loss will result to the owners of the mines if the use of white-lead in paints is prohibited, I take the liberty to respectfully point out that these facts and possibilities were well known and probably fully considered by the Government before it submitted the question to the Board for determination.

Moreover, it cannot be contended that the possibility of the use of white-lead in painting being prohibited was never thought of. In the report of the Interstate Commission issued in 1915 the following passage appears, viz.:—

Page 10—

“Most of the other European countries have very strict regulations in force, and make lead-poisoning an accident in connection with workmen's compensation. It is not within the province of this report to make a recommendation as to whether the manufacture and use of white-lead should be prohibited in Australia, as inquiry has not been particularly directed to that issue, but the Commission, knowing the general tendency of the industry abroad, is of the opinion that for the present no tariff inducement should be given to manufacture white-lead for paints in Australia, as the time may not be far distant when the prohibition of its manufacture and use may have to be considered.”

“In the meantime any works manufacturing white-lead in Australia should receive more than ordinary supervision from the State Government Factory Inspection Departments.”

Apart from this, however, I respectfully contend that financial consideration ought not to stand in the way of a reform which is intended to protect human health and life.

Substitutes for Lead Paint.

The evidence in this regard is considerable, and on the whole sufficiently reliable to claim the attention of the Board. It showed that what are known as “leadless” paints are extensively used in connection with inside and outside painting, also that such paints were rapidly increasing in popularity, and generally speaking satisfied public requirements.

If the Board, therefore, arrives at a decision that the use of white-lead in painting should be prohibited it would seem that no hardship will be inflicted upon users of paint.

Re Medical Evidence called by Employers.

The evidence of Dr. Chapman makes clear that danger is attached to the use of white-lead. True, he suggested that practically all persons are subject to suffer as the result of working with it, and that some are more tolerant

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to its effects than others. He also put forward the theory that in a population of painters the grades of resistance to the symptoms are numerous. Whilst admitting that the use of white-lead is dangerous he claimed that by taking precaution the ill-effects arising from its use are comparatively negligible.

In the course of his evidence the doctor expressed the view that persons susceptible to the disease ought not to follow an occupation which necessitated their using white-lead. He also gave it as his opinion that once a person became leaded it was essential for him to seek another avenue of employment. The learned Professor admitted that the rubbing-down process carried out by the painter was dangerous, but he did not subscribe to the suggestion that under normal conditions obtaining in the occupation it was very dangerous. The learned Professor gave much scientific evidence which substantially coincided with that to be found in text-books. The point, however, is that he did not dispute the universally accepted belief that the use of white-lead endangers life. True, he gave expression to the view that precaution could be taken which might minimise the danger, or in other words disagreed only from many other authorities in that he considered that the means of prevention were less hard to apply than is generally believed to be the case.

The learned Professor's experience in regard to cases of lead-poisoning amongst painters was confined to very few cases, and his scientific investigations had not extended to the dust set free by painters during the process of rubbing-down. For these reasons I respectfully suggest that the opinions of the medical authorities quoted by me be assumed to be more conclusive in regard to the question as to the dangers arising from the use of white-lead in painting.

In making this suggestion I have in mind frequent references of the Professor to some of such authorities and his adoption of their views in many instances.

The evidence of Dr. Smith was principally of a technical character, during the course of which he suggested, or rather his evidence included the suggestion, that the danger of turpentine-poisoning to painters was quite as probable as in the case of lead. This suggestion of the learned doctor may accord with fact, and is not altogether at variance with the views of many authorities. The possibility of poisoning occurring through the inhalation of turpentine is frequently referred to in text-books, but the danger arising from its use is not regarded as being nearly so apparent as the learned doctor's evidence would incline one to think. The extent of the use of turpentine for painting purposes or the possible danger arising therefrom was not expressly dealt with by any other witness, therefore no comment can be made from evidence in that regard. Still the absence of evidence as to the extent of its use inclines me to think that no appreciable quantity of it goes into the painting mixtures, which no doubt are due to the fact that the price of the material has increased enormously of recent years, and other ingredients less costly prove sufficient for the purpose for which turpentine is used.

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With regard to the dangers run by patients in the process of rubbing-down the learned doctor gives the following replies:—

Pages 825, also 833—

“So far as painting work is concerned you are not in a position to say how dust can be avoided in that industry?—No.

“But it is admitted that dust is dangerous?—Yes, you can start with that.

“*Deputy-President*: If it were found that one could not paint without creating a lead dust?”—I think that would constitute a strong argument in favour of prohibition.”

Taken as a whole, the doctor's experience with regard to cases of lead-poisoning amongst painters was not extensive, his studies and investigations being mostly in association with Dr. Chapman in connection with Broken Hill mines. The evidence of Dr. Smith, as in the case of Dr. Chapman, does not differ substantially from the scientific views of other medical authorities, and it may fairly be said that the matter of safeguarding the health of painters is still an open question, and one which can only be positively answered by a total prohibition of the use of white-lead in painting.

Regulations extracted from “House Documents,” vol. 95, with regard to the use of White Lead.

Pages 61, 62—

“Law and Regulations in regard to the use of White-lead Paints in European Countries.

“*Germany*.—Hand-mixing of white-lead is forbidden. In case of other colours use restricted to small quantities by male workers over 18 years. The rubbing of fresh paint or old paint with sand-paper or pumice may be done only after previous dampening. Workmen who come in contact with lead colours or lead mixtures must be instructed as to the dangers to their health and furnished with leaflet containing protective regulations. Employers must see that workmen coming in contact with lead provide themselves with caps and work clothes, and that they are used during work. Facilities for washing, soap and towels, and brushes for the cleaning of hands and nails must be provided. Lunch-rooms also must be provided. Medical examination at least once every six months is required.”

“*France*.—White-lead must be used only in the form of paste in the workshops of house-painters. Products containing lead as their basis must not be used with the hands. Scraping-off or rubbing by means of pumice stone of white-lead paint in a dry state is prohibited. Where white-lead paint is removed by the wet method, employers must place at the disposal of workmen overalls, and see that they are worn. The overalls must be kept in good order and frequently washed. All necessary facilities for washing must be provided at the place where the work is carried on. A decree containing the regulations must be posted in the place where new hands are taken on and where workmen are paid. Medical certificates are required, which must be renewed every three months.

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Lunch-rooms must be provided. The law of 20th July, 1909, to come into effect 1st January, 1915, absolutely prohibits the use of white-lead paint for exterior or interior painting."

"*Belgium.*—Belgium requires that the workmen avoid contact with the white-lead with their hands, apparently not forbidding hand-mixing or mixing by handwork. The posting of notices in establishments where dangerous or unhealthy conditions exist is a general requirement of the Belgium factory law. Dry-rubbing of old paint is forbidden. Medical examination every three months is required. Wash and lunch rooms are required."

"*Austria.*—All hand-mixing of white-lead is prohibited. In case of other colours the hand-mixing is regulated. Dry-rubbing of fresh paint or of old paint is prohibited. The use of white-lead in inside work is forbidden except in certain cases. Paints containing white-lead must be labelled so as to show that fact. Workmen must be instructed as to the dangers of their employment. Medical examination is required every three months if over twenty painters are employed, and under the same conditions wash and lunch-rooms must be provided."

"Austria's prohibition of white-lead paint in interior use carries with it several exceptions: On old white-lead paint, when nothing else would adhere well, white-lead paint may be used. It may also be used on walls which will be exposed to the action of steam or vapours, and in cases where the use of this paint would be required to keep work from going outside of Austria. All old lead paint which has been rubbed or scraped off by the moist process prescribed must be gathered up from the floor before it has had time to dry.

"In Germany, France, and Austria the law is stricter for painting in factories than for house-painting. For the former there are specific regulations much like those in the other lead trades. Working clothes must be provided, alcohol and tobacco are forbidden, there must be medical inspection every six months, and the lavatory facilities must include soap, towels, brushes, an adequate number of basins, and warm water. Germany has, however, provided more carefully for the protection of house-painters than has Austria. In Germany, if the work is house-painting, the contractor is required to provide overalls and caps for the men, and must have these articles washed and kept in order. He must provide a place sheltered from the cold, where the men may leave their street clothes and where they must keep and eat their lunches, and this place must have soap, towels, warm water, wash-basins, and nail-brushes. No other country has yet made such detailed provision for the care of house-painters. It is also made the duty of the employer in Germany to suspend from work any painter whom he knows to be suffering from lead-poisoning.

"The laws in these countries insist also that proper precautions shall be taken by the men themselves. Painters are forbidden to leave the premises where they are employed without first thoroughly washing their hands and faces. No food, no beverage, no tobacco may be carried

(Address of Union's Agent—Mr. M. J. Connington.)

into the work-room, and the men are not allowed to take their lunches in any room except the one provided for that purpose."

The Departmental Committee appointed to investigate the danger attendant upon the use of lead compounds in the painting, enamelling, and varnishing of coaches and carriages, in their report, published the following:—

Pages 40, 41—

"Safe-painting."

"The Committee deemed it desirable to hear one witness regarding safe-painting, the conditions of which are somewhat analogous to those of coach-painting.

"The works manager of Messrs. Chubb and Sons, Wolverhampton, one of the largest safe-manufacturing firms in the United Kingdom, stated that several years previously the use of lead stopping had been abandoned and replaced by zinc-white made into a paste with gold size and turps. The head painter of the firm reported that zinc white is preferable to lead for this purpose, both as regards finish and durability, and that the cost is a little less. The firm still use white-lead in their ordinary paints, but as safes are never exposed to the weather, the witness agreed that the use of lead paints is not essential."

Evidence Analysed by the House-painting Committee.

"Most of the general evidence considered by the Departmental Committee on the use of lead in the painting of buildings has also an equally direct bearing on coach-painting. It will not, however, be necessary to analyse all these data *in extenso*, but it will suffice if reference is made to those items which have carried most weight with the Coach-painting Committee in dealing with their own problem, namely:—

- "(1) The present practice of the Belgian State Railway Authorities, referred to in the evidence of Mr. Pisart and confirmed through the Foreign Office.

In this respect the note from the Belgian Minister for Railways quoted in full on pages 93 and 94 of the House-painting Committee's Report, shows that since 1909 no lead has been used for any of the painting work of the State Railways. The statement relates to locomotives, carriages, and waggons, as well as structural works, and, indeed, it was stated in evidence that lead was abandoned for the vehicles some years before a similar step was taken in regard to buildings.

- "(2) The evidence of Messrs. Cadbury Brothers, Limited, the well-known chocolate firm of Bournville, near Birmingham, whose representative stated that leadless paints were exclusively used by his firm; this evidence embraced private locomotives, motor-delivery vans, and the like, as well as buildings.

- "(3) Much of the more general evidence relating to the successful use of various leadless paints is also applicable to coach-painting as much as to house-painting, especially when it is remembered that the paint work on a coach is generally protected by varnish and its durability thereby enhanced.

(Address of Union's Agent—Mr. M. J. Connington.)

“(4) The considerations regarding coloured paints set out on pages 96 to 98 of the House-painting Committee's Report, refer equally to paints for coach work.

“(5) With regard to driers, it may be very desirable, as stated on page 98 of the House-painting Report, that a paint should contain a minute proportion of some lead compound; the evidence of the Midland Railway Company's representative and others shows that this proportion need not exceed a small fraction of 5 per cent.

“(6) The discussion by the Committee on the painting of buildings, on pages 99 to 101 of their report as to whether an adequate supply of non-poisonous materials can be maintained, and the subsequent paragraphs which deal with the restriction of the use of lead to not more than 5 per cent. of soluble lead, relate to the question of paint materials as a whole, including those required for coach work; those pages of that report may therefore be read as part also of this report.”

Suggestions.

In the event of the Board being of the opinion that regulations prohibiting the use of lead in painting are unnecessary, and that health requirements can be reasonably met by other means, I beg to respectfully submit the following proposals for the Board's consideration:—

- (1) That the employee be allowed five minutes wash time at mid-day and ten minutes in the afternoon for cleansing purposes and changing his clothes.
- (2) That where practicable facilities for washing, and also lunch rooms, shall be provided by the employers. In all cases soap, towels, and brushes for the cleansing of the hands and nails must be provided.
- (3) That, excepting in cases of extreme emergency, the employee shall have Saturday free so that there shall be a reasonable break in the continuity of his contact with white-lead.
- (4) That it be made compulsory for all medical men, also employers, to notify the proper authority of any instances of white-lead poisoning or its symptoms which may come under their notice.
- (5) That an employee whose health has been impaired as the result of working with white-lead shall be a charge upon the State during the period of his incapacity, and shall, upon recovery, be found employment by the State at work which will not bring him into contact with white-lead or other injurious materials, as used in the painting trade.
- (6) That where the number of painters employed exceeds ten it shall be the duty of the employer to cause a medical examination of his employees to be made at least once in every six months. In other cases the State shall provide facilities where an employee, upon application, shall be entitled to claim medical examination **without** payment of fees.

(Address of Union's Agent—Mr. M. J. Connington.)

*Evidence re State of Health of Employees engaged in Railway
Workshops and at Cockatoo Dockyard.*

The evidence tendered from these establishments does not appear to me to be founded on sufficient information to entitle it to be regarded as in any way conclusive.

In respect to the former it cannot be overlooked that the painting trade provides only intermittent employment for the majority of the men following the trade, and in the case of men seeking employment a medical examination is made before they are engaged.

As to Cockatoo Island there is sufficient to indicate that the periodical examination of employees referred to in the evidence is of a most casual nature; so much so that many men who had worked for extensive periods state that they had never undergone one. As to the prevalence of lead-poisoning amongst painters employed at Cockatoo, whilst the evidence of Dr. Roberts indicates that only one or two cases ranging over a series of years are recorded, the evidence of Mr. Shearman reported on page 457, indicates that symptoms and signs of the disease are very prevalent amongst painters employed at the island.

As before stated, however, this evidence, and possibly the evidence of the union's sincerity in connection with its belief, and its offer to submit members for examination, whilst indefinite, provides material for thought, and gives direction as to places where there is much scope for investigation.

LIST OF EXHIBITS.

Exhibit.	Tendered by.	Nature of Exhibit.	Page.
1.	Dr. Nash	List of twenty cases of persons examined by Dr. Nash.	708
2.	Bagnell, G. W.	List of paint ingredients purchased for use on Metropolitan Water and Sewerage Board's works, for year ended April, 1921.	708
3.	Morice, J. K.	Cable and translation of same sent by M. H. Laughlin & Co. to Messrs. Locke, Lancaster, and W. W. and R. Johnson and Sons Limited, of London, on 2nd July, 1921, together with reply and translation thereof, of same date.	709
4.	Wilson, F. W.	List of members of Accident Underwriters' Association of New South Wales.	710
5.	Perdriau, R. J.	Returns of compensation paid in lead poisoning cases in the years 1918, 1919, 1920, and to 30th June, 1921.	711
6.	Shearman, J. M.	Headings of various questions put to Accountant, Doctor, Times Office and Stores Department, Cockatoo Island.	714
7.	O'Brien, J.	Report of Operative Painters and Decorators' Union of Australia (New South Wales Branch) by a Committee appointed by its members.	715
8.	Dr. Roberts	Medical and Surgical Report of H.M.A. Dockyard between 1st January and 31st December, 1920.	720
9.	Goodwyn, J.	Letter from Manager of the Australian Provincial Association Limited, of Sydney, to the Insurance Commissioner, State Government Insurance Office, Brisbane, dated 2nd July, 1921.	725
10.	Perdriau, R. J.	List of Plumbism cases, representing extracts from the official notebook of Mr. Perdriau.	726
11.	Sawkins, D. T. ...	Copy of letter addressed on 29th June, 1921, by Statistical Officer, Board of Trade, to Government Statistician, Sydney, the reply of the Government Statistician to the Statistical Officer of the Board on 6th July, 1921, with enclosures of three sheets, first two headed "Number of Deaths of House Painters and of Painters Undefined, in New South Wales, during 1909-13 and 1920," and third headed "Deaths of Males of Specified Occupations, in Age Groups, from Lead Poisoning, in New South Wales, during the twelve years, 1909 to 1920."	728
12.	" ...	Table of deaths according to occupations and ages of males aged 15 years and upwards in the Commonwealth.	732
13.	" ...	Table showing proportions of deaths at various ages, and average age at death, of Commonwealth males, various occupations, 1909 to 1915.	733
14.	" ...	Table showing number of persons of various ages in the Commonwealth population of painters, and of males of all occupations at Census, 1911.	733
15.	" ...	Table of causes of death of males of all occupations aged 15 years and upwards, in Commonwealth, 1909 to 1915.	734
16.	" ...	Table showing for painters the excess of percentage of deaths due to certain diseases.	736
17.	Shearman, J. M.	Record of pro painters and painters and dockers, Commonwealth Naval Dockyard, Cockatoo Island, who have been shown on sick list from 1st January, 1920, to 30th June, 1921. Also number of days lost shown against each disease.	737

EXHIBITS.

Exhibit.	Tendered by.	Nature of Exhibit.	Page.
18.	Manning, H. E. ...	Notice to factory operatives in works of Lewis Berger and Sons (Australia) Ltd.	738
19.	„ ...	Return of Workmen's Compensation Classification and Rates of Employees of Lewis Berger and Sons (Australia) Ltd.	739
20.	„ ...	Particulars of cases of workmen employed by Lewis Berger and Sons (Australia) Ltd., coming under Workmen's Compensation Act.	739
21.	Morice, J. K. ...	Form to be filled in by applicants for employment with Lewis Berger and Sons (Australia) Ltd.	740
22.	Sawkins, D. T. ...	Table of estimated death rates of painters and of males in all occupations, based on deaths in 1909 to 1915, assuming same age and occupational distributions as at Census 1911.	740
23.	„ ...	Table of indexes of mortality from various causes of males aged 15 and over.	741
24.	Hayward, W. J. ...	Return showing time lost on account of sickness, &c., by painters and painters' assistants, employed at Carriage and Waggon Department, Eveleigh.	742
25.	Wray, G. W. ...	Return showing time lost on account of sickness, &c., by painters and painters' assistants employed at Permanent Way Department.	756
26.	Griffiths, C. J. ...	Return showing time lost on account of sickness, &c., by painters and painters' assistants employed at Randwick Tramway Workshops.	766
27.	Manning, H. E. ...	Sample of wood painted 12 months ago with zinc oxide paint.	767
28.	„ ...	Sample of wood painted 3 years and 9 months ago with white lead.	767
29.	Goodwyn, J. ...	Letter from John A. Watson, Insurance Commissioner, Queensland, to the President of the Board of Trade, dated 18th July, 1921.	767
30.	Young, J. A. ...	Three photographs of cottage at Roseville...	767
31.	Morice, J. K. ...	Memorandum and Articles of Association of the British Australian Lead Manufacturers' Proprietary Ltd.	767
32.	Gitsham, James...	Matter not marked as an Exhibit, but received after conclusion of public inquiry.	768

EXHIBITS.

EXHIBIT No. 1.

PLUMBISM CASES—(20 cases).

Folio.	Date.	Particulars.
43/19	1 April, 1919	Charles Lowe (35 years), decorator and painter. Gave certificate, "Lead poisoning."
50/19	22 „ 1919	Charles E. Crump (57 years), decorator and painter. Gave certificate to 22nd July, 1919, when he may resume work.
105/19	28 Oct., 1919	William H. Money (43 years), house decorator and painter. Gave certificate.
117/19	8 Dec., 1919	A. B. Jewry (about 28 years), ship's painter, Liverpool. Consultation with Dr. Pirrie. "Lead poisoning."
110/19	12 „ 1919	W. H. Hill (about 29 years), solderer. Gave certificate. Consultation with several doctors about him.
120/20	8 Jan., 1920	Albert Austin (42 years), house painter. Gave certificate.
127/20	11 Feb., 1920	G. Pickering (48 years), house painter. Gave certificate.
33/20	29 Mar., 1920	Frank Farr (42 years), painter, Garden Island. Gave certificate.
40/20	8 April, 1920	Louis Bohm (48 years), house painter. Gave certificate. Died (10th April, 1920), I was so informed.
47/20	1 May, 1920	William Peach (30 years), house painter. No certificate.
50/20	7 May, 1920	Ernest Miner (51 years), house painter. Gave certificate.
52/20	10 July, 1920	Joseph Shannon. Consultation at Callan Park with Dr. Coutie.
58/20	19 „ 1920	Charles S. Mowbray (45 years), ship joiner. A doubtful case, who worked at Mort's Dock. Gave certificate and recommended further investigation.
58/20	21 „ 1920	Joseph Parks (about 45 years). Saw him at Gladesville Mental Hospital; terminal stages of Plumbism.
90/20	27 Oct., 1920	J. Holbon Warden (?). No entry in note book.
90/20	29 „ 1920	E. S. Morieson (29 years), Government Printing Office. Gave certificate for Plumbism. Mild case.
90/20	29 „ 1920	*Thomas Osborne (48 years), painter and grainer. Gave certificate. Litigation lately, Drs. Sheldon and Campbell.
95/20	13 Nov., 1920	Ernest A. Conley (31 years), compositor. Gave certificate.
111/21	14 Jan., 1921	H. S. Walker (37 years), painter and decorator. Gave certificate.
90/20	14 Mar., 1921	*Thomas Osborne (48 years). Same as above, 29th October, 1920. Gave a certificate.
130/21	15 „ 1921	W. G. Curran (59 years), house painter. A case complicated with cancer of the stomach. Consultation about him in Sydney Hospital. Afterwards operated for stomach condition.

EXHIBIT No. 2.

METROPOLITAN BOARD OF WATER SUPPLY AND SEWERAGE.

PAINT ingredients purchased for use on Board's works for year ended April, 1921.

Paints.	Cwt.	qr.	lb.	Cwt.	qr.	lb.
White zinc.....	8	3	14			
Rectified zinc in oil	61	0	0			
White lead	19	2	0			
Red lead	13	0	0			
Red oxide	29	1	14			
Oxford ochre	1	2	0			
Yellow ochre	0	1	0			
Turkey umber.....	1	0	0			
Burnt umber	0	0	7			
Burnt sienna	2	2	7			
Ultramarine blue	1	0	0			
Brunswick green.....	1	0	0			
Bronze green	5	0	21			
Black	0	0	7			
	144	1	14			
				144	1	14

Exhibit No. 2—continued.

PAINT ingredients purchased for use on board's works—continued.

	Cwt.	qrs.	lbs.
Carried forward.....	144	1	14
Oil and Spirits.			
Terebene	2	1	21
Turpentine	7	1	7
Raw oil	32	0	14
Boiled oil	53	1	16
	95	1	2
	95	1	2
	239	2	16

(Sgd.) G. W. BAGNELL,
Comptroller of Stores.

EXHIBIT No. 3.

Matthew Highet Lauchlan & Co., 32 Market-street,
Sydney, 2 July, 1921.

TRANSLATION of Cable sent this day to Messrs. Locke, Lancaster, and W. W. & R. Johnson and Sons,
Limited, London.

Words.	Translation.	Words.	Translation.
KUJWA	New South Wales	LELAF	9
AZZYR	Board of Trade	VYILB	We would
FEHZA	Making enquiry	AMGAP	Appreciate
OWTAG	Having regard to	IJJYX	Any information
PICAM	Restriction	PHAMD	With respect to
NIPLY	Or the	OHJYJ	What is the present
OKTEF	Prohibition	OGAWT	Position
VIASF	Use of	GOAWT	In France
WEPER	White	TUGNY	Stop
JABIC	Lead	OGGEF	Send by first post
UHIG	Telegraph immediately whether	ALRAG	Any of the
GOOZB	French Government	IZMUN	Very latest
FASIJ	Enforcing	ONCUC	Publications
IZPYR	Law	PHEBS	Respecting
MYRIR	Of the	EMPYK	Discussion regarding
WUBOV	Year 19—	JABIC	Lead.

TRANSLATION of Cable received this day from Messrs. Locke, Lancaster, and W. W. and R. Johnson
and Sons, Ltd., London, under date 2nd July, 1921.

Words.	Translation.	Words.	Translation.
GOOWY	French	URLOF	2,000 tons
OKTEF	Prohibition	WEPER	White
KUWEM	Not	JABIC	Lead
FASAG	Enforced	BISOK	By
IZGUH	Very large	GUMSO	Germany
IDCYL	Imports	UMPET	To
ALAVK	And	GOAMK	France
JUYRA	Manufacturers	NYLLE	Part of
WEPER	White	REPARATION	Reparation
JABIC	Lead	TERMS	Terms.
TUGNY	Stop		
PHUSP	Restoration		

EXHIBIT No. 4.

THE Accident Underwriters' Association of New South Wales, 4th July, 1921.

LIST OF MEMBERS.

Company.	Address (Sydney).
1. Alliance Assurance Co., Ltd.....	97 Pitt-street.
2. Atlas Assurance Co., Ltd.....	8 Spring-street.
3. Australian Mutual Fire Insurance Society, Ltd.....	115 Pitt-street.
4. Batavia Sea and Fire Insurance Co., Ltd.	O'Connell-street.
5. British Crown Assurance Corporation Limited	15 Macquarie-place.
6. British Traders' Insurance Co., Ltd.	12 Bond-street.
7. Colonial Mutual Fire Insurance Co., Ltd.	74 Pitt-street.
8. Commercial Union Assurance Co., Ltd.	Corner Pitt and Hunter streets.
9. Eagle, Star, and British Dominions Insurance Co., Ltd.	Allport Chambers, O'Connell-street.
10. Employers' Liability Assurance Corporation, Ltd.....	3 Bond-street.
11. Farmers' and Graziers' Co-operative Grain Insurance and Agency Co., Ltd.	Albert-street.
12. Farmers' and Settlers' Co-operative Insurance Co. of Australia, Ltd.....	129 Pitt-street.
13. Federal Mutual Insurance Co. of Australia, Ltd.....	129 Pitt-street.
14. General Accident F. and L. Assurance Corporation, Ltd.	7 Bond-street.
15. Gresham Fire and Accident Insurance Society, Ltd....	13 Bond-street.
16. Guardian Assurance Co., Ltd.	72 Pitt-street.
17. Lift Inspection and Insurance, Ltd.....	77 King-street.
18. Liverpool and London and Globe Insurance Co., Ltd....	62 Pitt-street.
19. London Assurance Corporation	16 Bridge-street.
20. London Guarantee and Accident Co., Ltd.....	89 Pitt-street.
21. London and Lancashire Fire Insurance Co., Ltd.....	95 Pitt-street.
22. Mercantile Mutual Insurance Co., Ltd.	16 Martin-place.
23. Metropolitan Accident, Fire, and General Insurance Co., Ltd.	30 Castlereagh-street.
24. National Insurance Co. of New Zealand, Ltd.....	14 Spring-street.
25. New Zealand Insurance Co., Ltd.	81 Pitt-street.
26. Northern Assurance Co., Ltd.....	Bridge-street.
27. North British and Mercantile Insurance Co.....	64 Pitt-street.
28. Norwich and London Accident Insurance Association...	Martin-place.
29. Phoenix Assurance Co., Ltd.....	57 Pitt-street.
30. Queensland Insurance Co., Ltd.	Corner Pitt and Bridge streets.
31. Royal Exchange Assurance Corporation of London	75 Pitt-street.
32. Royal Insurance Co., Ltd.	Corner Pitt and Spring streets.
33. Scottish Union and National Insurance Co., Ltd.....	Hamilton-street.
34. South British Insurance Co., Ltd.	Hunter-street.
35. Standard Fire and Marine Insurance Co. of New Zealand, Ltd.	Corner George and Bridge streets.
36. State Assurance Co., Ltd.....	41 Pitt-street.
37. Sun Insurance Office	115 Pitt-street.
38. Triton Insurance Co., Ltd.	58 Margaret-street.
39. The Insurance Office of Australia, Ltd.....	263 George-street.
40. United Insurance Co., Ltd.	Corner George and Hunter streets.
41. Victoria Insurance Co., Ltd.	83 Pitt-street.
42. Western Australian Insurance Co., Ltd.	16 O'Connell-street.
43. Yorkshire Fire Insurance Co., Ltd.....	22 Bond-street.
44. Australian Amicable Assurance Association, Ltd.....	72 Pitt-street.
45. Australasian Mutual Insurance Society, Ltd.....	5 Bond-street.
46. Australasian Plate Glass Insurance Co., Ltd.....	Clarence-street.
47. Australian Alliance Assurance Co.	95 Pitt-street.
48. Bombay Fire and Marine Insurance Co., Ltd.....	7 Bond-street.
49. Caledonian Fire Insurance Co. (State).....	Hamilton-street.
50. Central Insurance Co., Ltd.	62 Pitt-street.
51. City Mutual Fire Insurance Co., Ltd.....	95 Pitt-street.
52. Commonwealth Insurance Co., Ltd.	15 Macquarie-place.
53. Derwent and Tamar Assurance Co., Ltd.	76 Pitt-street.
54. Imperial Fire Office	97 Pitt-street.
55. Lancashire Insurance Company	Corner Pitt and Spring streets.
56. Law Union and Rock Insurance Co., Ltd.	41 Pitt-street.

Exhibit No. 4—continued.

Company.	Address (Sydney).
57. Manchester Assurance Co., Ltd.	Albert-street.
58. National Union Insurance Society, Ltd.	Hamilton-street.
59. New Zealand Accident Insurance Co., Ltd.	81 Pitt-street.
60. North Queensland Accident Insurance Co., Ltd.	Corner Pitt and Bridge streets.
61. Ocean Accident and Guarantee Corporation, Ltd.	22 Moore-street.
62. Patriotic Assurance Co., Ltd.	115 Pitt-street.
63. Sydney Fire Office, Ltd.	76 Pitt-street.
64. Union Assurance Society, Ltd.	27 O'Connell-street.
65. Australian Provincial Assurance Association, Ltd.	77 King-street.
66. Southern Insurance Association, Ltd.	77 King-street.
67. British Equitable Assurance Co., Ltd.	75 Pitt-street.
68. Pacific Insurance Co., Ltd.	3 Bent-street.
69. Palatine Insurance Co., Ltd.	Corner Bridge and Leftus streets.
70. Commonwealth General Assurance Corporation, Ltd.	42 Hunter-street.
71. The English Insurance Co., Ltd.	76 Pitt-street.
72. Australian Natives Association, Ltd.	10 Castlereagh-street.
73. Southern Union General Insurance Co. of Australasia, Ltd.	17 Bond-street.
74. Bankers and Traders Insurance Co., Ltd.	52 Pitt-street.

The Accident Underwriters' Association of New South Wales,

(Sgd.) FRANK W. WILSON,

Secretary.

EXHIBIT No. 5.**RETURNS OF COMPENSATION PAID IN LEAD-POISONING CASES.**

	1918.	No. of Cases.	Compensation Paid. £
Broken Hill District (?) Smelting and Reduction Works.....	1	—	94
Other parts of New South Wales :—			
Cycle and motor cycle manufacturing	1		10
Electric lighting	1		12
Furniture manufacturing	1		17
Meat preserving	2		14
Rubber manufacture	1		8
Smelting and Reduction Works	1		94
Stove manufacturing.....	2		43
Tinsmithing.....	1		2
Total	10		200
	1919.		
Broken Hill District—			
Metalliferous treatment.....	39		2,656
Other parts of New South Wales—			
Painting (building).....	1		428
Total	40		3,084
	1920.		
*Broken Hill District—			
Mining and Mineral Treatment	61		10,420
*Other parts of New South Wales—			
(All metropolitan district)	19		2,428
Total	80		12,848
Grand Total	131		£16,226

CASES EXAMINED BY CERTIFYING SURGEON.

	1918.	1919.	1920.	To 30th June 1921.
Broken Hill (county of Yancowinna) ...	...	96	132	70
Metropolitan District.....	2	3	15	3

* See detailed list attached.

Exhibit No. 5—continued.

BROKEN HILL DISTRICT (COUNTY OF YANCOWINNA).

CASES of Lead Poisoning Compensated during the year 1920.

Mining and Mineral Treatment.

Employer.	Age	Date.	Occupation.	Duration— Weeks.	Average Male Employees.	Compensation Paid.
						£ s. d.
Sulphide Corporation...	60	.....	Mining	4	179	358 0 0
	58	.....	" .....	52		104 0 0
	60	.....	" .....	72 $\frac{3}{4}$		127 15 5
	50	.....	" .....	11 $\frac{1}{2}$		407 0 0
	49	.....	" .....	8 $\frac{1}{2}$		400 0 0
Zinc Corporation Ltd.	41	.....	Labourer	52	763	367 18 1
	57	.....	Platelaye	52		104 0 0
	45	.....	Miner.....	20		40 0 0
	35	.....	Mill worker ...	52		92 15 0
	56	.....	Labourer	37		65 0 0
	48	.....	Timberman ...	38		76 0 0
Broken Hill South Ltd.	49	.....	Miner.....	87 $\frac{1}{6}$	471	174 6 8
	35	.....	" .....	90 $\frac{1}{6}$		180 6 8
	35	.....	" .....	85		27 3 9
	38	.....	" .....	43 $\frac{3}{4}$		100 0 0
	45	.....	" .....	33		17 16 2
	42	.....	" .....	59		108 3 4
	51	.....	" .....	60		5 10 0
	54	.....	" .....	27 $\frac{1}{6}$		500 0 0
	54	.....	" .....	62 $\frac{1}{2}$		109 0 3
	32	.....	" .....	53 $\frac{1}{2}$		107 0 0
	...	.....	" .....	53		61 9 1
	...	.....	" .....	40		33 14 0
	54	.....	" .....	Fatal		500 0 0
	46	.....	" .....	Fatal		500 0 0
	49	.....	Labourer	38 $\frac{1}{2}$		64 12 10
British B. H. Pty. Co....	47	.....	Mining	52	757	104 0 0
	36	.....	" .....	52		104 0 0
	59	.....	" .....	52		102 2 0
	37	.....	" .....	52		104 0 0
	50	.....	" .....	38		76 0 0
	58	.....	" .....	Fatal		500 0 0
North B. H. Co.	51	.....	In mills	47 $\frac{1}{6}$	...	94 6 8
	46	.....	" .....	49 $\frac{1}{2}$		93 13 1
	35	.....	Mining	11		13 0 6
	45	.....	" .....	24 $\frac{1}{2}$		320 0 0
	57	.....	" .....	Fatal		500 0 0
	46	.....	" .....	Fatal		500 0 0
B. H. Block 10 Co. Ltd.	50	.....	Miner	52	280	104 0 0
	42	.....	Sailor	52		97 10 0
	52	.....	Trucker	21 $\frac{1}{6}$		41 13 2
	45	.....	Sampler	26 $\frac{1}{2}$		48 0 0
	46	.....	Timberman ...	35 $\frac{1}{6}$		71 2 10
Broken Hill Pty. Co. ...	51	.....	Mining	52	327	93 12 0
	52	.....	" .....	Fatal		476 0 0
	37	.....	" .....	54		108 0 0
	33	.....	" .....	68		136 0 0
	56	.....	" .....	40		80 0 0
	60	.....	" .....	83		124 5 2
	45	.....	" .....	52		104 0 0

Exhibit No. 5—continued.

CASES of Lead Poisoning compensated during the year 1920—continued.

Mining and Mineral Treatment—continued.

Industry and Employer.	Age.	Date.	Occupation.	Duration.	Average Male Employees.	Compensation Paid.
BROKEN HILL DISTRICT (County of Yancowinna)—continued.						
Broken Hill Pty., Co.— <i>continued.</i>	56	.....	Mining	38		£ s. d. 76 0 0
	59	.....	" .....	39½		79 8 7
	58	.....	" .....	44		88 0 0
	45	.....	" .....	54		94 3 3
	38	.....	" .....	52		104 0 0
	41	.....	" .....	52		104 0 0
	36	.....	" .....	39½		78 17 1
	57	.....	" .....	39½		76 16 1
	54	.....	" .....	46		92 0 0
	47	.....	" .....	Fatal		500 0 0
	53	.....	" .....	Fatal		500 0 0
METROPOLITAN DISTRICT COURT DISTRICT.						
Painting— Stuart Bros., Camperdown.	...	11 Dec., 1919	Painter .....	.....	220	200 0 0
A. G. Sayers, Rose Bay.	55	.....	" .....	18 weeks	2	36 0 0
E. J. Miner, Wahroonga.	38	5 May, 1920	"	2 „	5	4 0 0
Mason and Fletcher, Redfern.	60	2 Oct., 1920	"	13 „	3	26 0 0
F. Thomas Woolahra.	32	20 July, 1920	"	Fatal	8	500 0 0
C.S.R. Co., Pyrmont	49	.....	" .....	3 weeks 5 days	?	7 13 4
Building Construction Branch.	55	.....	" .....	Fatal	191	528 4 0
	48	.....	" .....	Fatal .....	.....	519 5 6
Pottery Manufacturing— Bakewell Bros., Erskineville.	45	7 Sept., 1920	Kilnman	9 weeks	193	18 0 0
Iron Trades— Engineering— Mort's Dock	45	19 July, 1920	Joiner	15½ weeks.....	1,000	31 6 8
Motor Cars— Accumulators Ltd., Sydney.	19	24 Dec., 1920	Packer	1 week	44	1 10 0
	20	20 Dec., 1920	"	1 week 4 days..	.....	2 11 6
	23	5 Oct., 1920	"	7 „ 2½ „	.....	13 8 7
Stove, Piano Frame, &c.— Metters Ltd., Alexandria.	42	21 Dec., 1920	Labourer	1 week	685	2 0 0
	27	10 Mar., 1920	Enameller ..	5½ „ .....	.....	11 5 5
Printing, &c., Paper Bag— Simpson and Mann	52	.....	.....	Fatal	14	425 0 0
Other Manufacturing— N.S.W. Glass Co., Leichhardt.	20	24 Mar., 1920	Mixer.....	5 weeks	42	8 1 9
Perdriau Rubber Co.	20	9 Mar., 1920	.....	7 wks. 4 days	373	14 4 5
Transport, Sea— P.J. and Manly S.S. Co.	...	.....	Painter .....	.....	211	80 0 0 and 6d. per week.
Painters, 8; others, 11; total, 19.						

EXHIBIT No. 6.

COMMONWEALTH NAVAL DOCKYARD, COCKATOO ISLAND.

Information required by Mr. Shearman for use before the Board of Trade.

1. Number of white-lead poisoning cases on the Island for last 18 months. (Prof. Painters, and Painters and Dockers.)
2. Number of cases of sickness from other causes on the Island for the last 18 months. (Prof. Painters, and Painters and Dockers.)
3. Average number of men engaged in painting on the Island for the last 18 months. (Prof. Painters, and Painters and Dockers.)
4. Average number of absentees, sick. (Prof. Painters, and Painters and Dockers.)
5. Comparison of Prof. Painters, and Painters and Dockers against other trades, absent sick.
6. Total weight of paint material used during the last 18 months. (Prof. Painters, and Painters and Dockers.) Anti-Fouling to be shown separately.

The above information is required before 11-0 a.m. tomorrow, the 12th instant.

(Signed) General Manager.

Varnishes.

Copal	100 galls.
Carriage	26 "
W.H. Spirit	4 "
B.H. Spirit	10 "
French Oil	3 "
143 = 12 cwt. 2 qr. 2 lb.	

Dryers.

Terebene	300 gall.
Gold size	100 "
White Japan	150 = 49 cwt. 0 qr. 2 lb.

Paint Material.

Used during the period 1st January, 1920, to 30th June, 1921.

Lead, White	50 tons.	Indian Red, dry.....	1 cwt.
" Red	20 "	Green, Brunswick	1 "
" Zinc	20 "	Ochre, Yellow	$\frac{1}{4}$ "
Zinc, White	10 "	Fire Red	$1\frac{1}{4}$ "
Whiting	8 "	Chrome Yellow	1 "
Oxide, Red in oil	12 "	Blue, Ultramarine	$\frac{1}{2}$ "
Mill White	7 "	Vermilion	$\frac{1}{4}$ "
Putty, White	10 "	Black, Vegetable	6 "
" Red-lead	4 "	Aluminium powder	1 "
" Black	$\frac{1}{4}$ "	Keystona	500 galls.
Cement, Scott's in oil	$\frac{1}{2}$ "	Oil, Linsced Raw	4,800 "
Burnt Sienna	$\frac{1}{2}$ "	" " Boiled	2,000 "
" Umber.....	$\frac{1}{4}$ "	Turps	1,250 "
Ochre, Yellow	$\frac{1}{2}$ "		
Green, Brunswick.....	$\frac{1}{2}$ "	Anti-fouling composition,	
Fire Red	$\frac{1}{4}$ "	&c.	50 tons.

Enamels.

Ferjapan	130 galls.	Noble and Hoare	15 galls.
Varnol	90 "	Zinolin	100 "
Efelvice	320 "	Elastic.....	30 "
J onal	10 "	Anti-Sulphuric White	3 "

Exhibit No. 6—continued.

General Manager.

Surgery, 11th July, 1921.

Submitted List of Prof. Painters and Painters and Dockers suffering from lead-poisoning and other diseases, from 1st January, 1920, to 30th June, 1921.

Lead-poisoning.

1 case. Painter and Docker.

Other Diseases.

39 Prof. Painters.

163 Painters and Dockers.

(Sgd.) T. J. GRAY,
Chief Ambulance Officer

Mr. Sahariah.

Please furnish the following information :—

1. Average number of men engaged in painting for the period 1st January, 1920, to 30th June, 1921. (Prof. Painters, and Painters and Dockers.)
2. Average number of absentees sick. (Prof. Painters, and Painters and Dockers.)
3. Comparison of Prof. Painters, and Painters and Dockers against other trades, absent sick.

Information herewith.

No. on
G.M.'s
List.

3	Prof. Painters	63	Painters and Dockers	385
4	„	1	„	7
5	„	1	„	7
	Other trades.....	39		

These figures represent the daily average.

G.S.
11-7-21.

Combined daily average of	448
„ „ sick	8
Comparison „ „	8
„ „ other trades	39

EXHIBIT No. 7.

OPERATIVE PAINTERS AND DECORATORS' UNION OF AUSTRALIA.

Report on Union Committee appointed 1918, by Mr. O'Brien, as Secretary of Union.

THE Committee recognise that upon entering into the questions of the prohibition of white-lead, they are touching a subject that has occupied the attention of the world's greatest authorities on medical science and chemistry for many years.

It is, therefore, impossible in a report of this character to do much more than merely touch the fringe, but it is their intention to give sufficient reasons for arriving at their final conclusions.

It is established by the evidence of the medical authorities who have made a life study of lead-poisoning, that the great source of the danger resides in the lead dust created by sand-papering and dry rubbing down. Mr. Legge, British Government Medical Inspector under the Factory and Workshop Act, ascribes to dry rubbing down, the great source of the trouble in painting operations. This testimony is supported by that of Dr. Kaup, Germany; Dr. Rambosek, Austria; Dr. Collis, Dr. Kenneth Goadby, England; Dr. Kober and Dr. Alice Hamilton, America.

Personal cleanliness is very desirable, but Dr. Legge thinks the danger from this source (inattention to cleanliness) is slight compared with the danger from dust created by dry rubbing down with sand-paper and pumice-stone.

He said, on giving evidence at the British inquiry, " Unless you can go to the fountain head of the mischief and stop the dust, you are not going to secure much improvement by all the cleanliness in the world."

Exhibit No. 7—continued.

Out of this British inquiry, which lasted for four years, has come this supreme result; that the great source of lead-poisoning is to be found in the dust. It is a commonplace to the scientific men who have been familiar with the question, but the Committee are of the opinion that if the members were asked to write down on paper the source of lead-poisoning, you would not have more than 3 per cent. of them who would have ascribed to the dust from dry rubbing down. The replies would most probably have been "dirty habits," "neglect of personal cleanliness," "the smells given off from dry paint," "getting paint on the person," and such like. Although the personal cleanliness of the workman prevented acid-poisoning to some extent, it was shown on the other hand that dry rubbing down was very dangerous, however careful a workman might be, while the splashing arising from stiffing was also an item of importance.

The inhalation of lead dust from dirty drop clothes and overalls is doubtless a frequent cause of plumbism among house-painters and decorators, and for obvious reasons the men should also be careful not to expose their street clothing to lead containing dust. The ingestion of lead through unwashed hands, &c., while eating, drinking, smoking, or handling tobacco and pipes, is naturally a frequent cause of plumbism. While every painter knows that "hot water and soap, and time enough to use them, are important protective measures," the fact is that these facilities, except in shop works, are very seldom available.

The painting trade is regarded in all countries as the most important of lead industries, for it employs a large number of men, and as it is a skilled trade men do not drop out of it at the first attack of illness, but usually keep on till actually incapacitated. It is more difficult to control conditions in the painting trade than in any other lead trade, and therefore while industrial poisoning has been greatly diminished in other occupations there has been no falling off in this trade in Great Britain.

The Illinois Report has 157 painters among 578 cases from all trades, or 27 per cent. Pratt's Report of 190 cases includes no less than 42 painters, while Andrews quotes the record of one New York hospital in which 59 cases of lead-poisoning were treated, 28 of them being painters, and the proportion of his 60 fatal cases was even greater, 40 or two-thirds.

In order to gain some idea of the extent of lead-poisoning in the trade, E. R. Hayhurst made a thorough examination of 100 able-bodied painters and found 59 of them with evidence of chronic plumbism.

Between 1900 and 1907 there was reported to the Home Office in Britain 1,973 cases of lead-poisoning, with 380 deaths of house-painters. Paralysis of the hands and fingers is extremely common in house-painters. Tancquerel des Planches found paralysis present in 8 per cent. of bad poisoned French house-painters, Telety in 14.5 per cent. of Austrian painters, and Legge in 22.0 per cent. of British house-painters. In the United States it was found that one in every six painters gave a history of having had plumbism in one form or another; in other words, 16.6 per cent. Koelsch, in a careful study of 5,000 painters in Munich, found only 8 per cent. were over 50 years of age, the majority were between 16 and 40 years of age. Of this number 13.83 per cent. had experienced symptoms of lead-poisoning; about one-third had suffered from more than one acute attack. Colic occurred in about 85 per cent. of the cases. Krelot's general percentage corresponded very closely with the results obtained by the Illinois Commission on Occupational Diseases for 1911, which show that of 578 cases of lead-poisoning 27 per cent. were painters. The statistics of Pratt and Andrews, by Dr. Hamilton, indicates a higher percentage. The average age of 1,388 painters and decorators and paperhangers in Chicago in 1911 was 43 years and 3 months. During the British inquiry, Dr. Collis dealt with statistics of invalidity, and showed that the amount of sickness among any class of workers would be judged by the contribution required by the friendly societies. As long ago as 1854 it was realised that four classes of workers were exposed to exercised risk of invalidity, viz., mariners, miners, painters, and railway servants; while painters are not liable to accident and sickness to anything like the same extent as the other three classes just named. The contribution required from the painters stands second, and is only exceeded by that required by the miners. In the United States Bulletin of Labour for 1910, figures given show the insurance rates charged in the various occupations in all the principal civilised countries. Since the Act of 1906 has made lead-poisoning a ground for compensation under the Workers' Compensation Act, the insurance rates for painters have increased, while the rates have somewhat decreased during the same period for many other occupations; further, the increase of rates for painters which has taken place since 1907, has not occurred in countries where lead-poisoning is not the subject of compensation. In England, the Hearts of Oak Society refuse to allow house-painters to become members;

Exhibit No. 7—*continued.*

In respect of fatal cases arrangements were made in 1908 with the Registrar-General for England and Wales to forward to the Home Office copies of all death certificates on which lead-poisoning appears as the cause of death; and an analysis of them extending over a period of ten years, namely 1900 to 1909 inclusive, shows an examination by Dr. Legge that of 627 certificates, 284 represent painters, 79 plumbers, and 264 factory operatives.

These figures are not, however, quite exhaustive, and the total notifications of such death are so important that in addition it is advisable to give the actual statistics for the period of 1900 to 1909, and for the years 1910 to 1913 inclusive.

Total for four years 1910 to 1913: 134 painters and 146 from occupations, &c.

These figures show that the number of deaths from lead-poisoning among house-painters alone, viz., 427, alone exceeds the total of all deaths from lead-poisoning among factory operatives, notwithstanding that the latter includes workers engaged in the manufacture of white-lead, potter lead compounds, in the manufacture of pottery, and many other industries in which the risk of lead-poisoning has long been recognised, and which have been the subjects of special legislation.

While the rates of deaths and attacks due to lead-poisoning among house painters may look comparatively small when the actual numbers engaged in the industry are taken into consideration, yet they are not so insignificant as at first appears. In the first place the case incidence is materially affected by certain conditions of employment peculiar to the trade. Painting operations, for example, are not carried out with full vigour throughout the year, and very fine painters are exposed to the risk of lead-poisoning during more than ten or eleven months out of the twelve. Moreover, such is the diversity of their occupation, including, as it does, prefatory work of all kinds, white-washing, kalsomining, using leadless paints, and the like, that the estimated time during which a painter is actually handling lead materials is not more than one-third of his working hours. Inasmuch as a period of absence from lead work assists the system to regain its normal condition, the above consideration alone might be expected to reduce the incidence by more than 75 per cent., and to that extent the rates—whether of death or illness—as indicating the magnitude of the danger to which operatives are exposed when in full work, would be greatly underestimated.

Among persons employed as house-painters in England and Wales, about 30 deaths are reported from lead-poisoning each year. As to the number of non-fatal cases there are no complete statistics, since house-painters do not come under the factory Acts, and reports of cases are entirely voluntary. However, the number of non-fatal cases is estimated at 750 per annum.

Two forms of lead-poisoning are met with, the acute and chronic. It is with lead as with many other poisons. One individual may work for several months or years without suffering, while another may succumb to its harmful influence in as many weeks. The most careful worker may suffer; so, too, may the oldest, who has passed unscathed for many years. Alcoholic excess predisposes to plumbism. Why colic is such a common and early symptom of saturnine poisoning is because the alimentary canal is one of the principal channels by which the lead enters the system, and lead is known to have a special affinity for muscular fibre and nerve tissue, and to induce spasm. Colic is often attended by vomiting and by obstinate constipation.

The pain is of varying degrees of severity. Sometimes it is so mild that the individual is able to follow his occupation, but in discomfort. At other times it is so severe that he rolls about in agony. One attack of plumbism unfortunately predisposes to another. Occasionally relieved by pressing the hand upon the abdomen, it is in other circumstances often aggravated by it. The pulse is slow, small and feeble, during the attack, although at times it is found to be hard, and showing high tension. In severe colic the individual is collapsed, the face wears an anxious expression; there is sleeplessness, and the functions of the kidneys are seriously impaired. A blue line on the gums tells the tale that the individual has been exposed to lead, and that the metal is present in his system, so that when he associates with certain other signs and symptoms the presence of the blue line on the gums it clinches the diagnosis of plumbism. The question of insanity in lead workers has been very ably dealt with by Dr. Robert Jones, the Medical Superintendent of the London County Asylum, Claybury, Essex, in the *British Medical Journal*, 22nd September, 1900. In examining the histories of 3,500 male patients admitted into Claybury, Dr.

Exhibit No. 7—*continued*.

Jones found that of these 133 were artisans, who, in that trade, had possibly become impregnated with lead. Their occupations were as follow :—

Painters and decorators	88
Plumbers.....	18
Gasfitters	13
Labourers in lead works	6
Grainers.....	3
Gas-meter makers	2
Color maker	1
File cutler	1
Tea lead roller	1
Total	133

Dr. Stuhler, of Berlin, who obtained his facts from benefit societies, states that of 3,000 painters in Berlin, 313, or 10·4 per cent., were annually off work from the effects of lead-poisoning. In Paris, Gauntiers found that out of 1,400 painters and varnishers, 250 on an average attended the hospitals on account of plumbism, and that an equal number was treated at home, making a total percentage of 3·5. Of late the admissions into the hospitals of cases of lead-poisoning have been increasing, notwithstanding the regulations issued by the French Government, and the fact that the patients coming from white-lead works have been getting fewer.

This circumstance is explained by other industries sending more patients than formerly and of these industries house painting has contributed the largest number. During the years 1894-98, this trade alone contributed 223 patients, while white-lead works only sent 4, and the occupations of plumbing 22. Lead-poisoning among house-painters is much more prevalent than people imagine. Taking a few reports at random there were 254 cases of plumbism in house-painters and plumbers (with 32 deaths) reported to the Home Office during the ten months ending October, 1913, and 210 (with 32 deaths) during the ten months ending October, 1914.

These figures show that if saturnine poisoning in house-painters was notifiable, painting would be found to be the cause of a great amount of sickness of which at present we hear very little.

Cases of industrial lead-poisoning are obliged to be reported in Britain by the medical men and by employers, but an exception is made in regard to house painting, one of the reasons being that as painters pursue their avocation largely in the open air, and in houses away from the employers' premises, it is difficult to say where the poisoning was contracted.

The British inquiry into white-lead elucidated many aspects of the paint questions which, before the investigation, were obscure. It has thrown new light on other aspects of paint-poisoning which demanded further consideration.

The direction in which the inquiry has been most useful is on that side of it relating to the toxic effect of paint on the health of the workman, because the evidence submitted went to prove that the other ingredients of paint, apart from the pigment used, the vehicles, oil and turpentine, especially the turpentine, have a very deleterious influence on the health of the workman, much of which, no doubt, has been ascribed to white-lead. It was clearly shown that the hitherto unsuspected volatile thinner in paints, turpentine, must be regarded as having serious toxic properties.

The theory that volatile lead emanations are given off from drying paint has been exploded by men of world-wide reputation.

The Committee were faced with two alternatives, the first prohibition pure and simple, regardless of any consequences, and the second to consider those means of regulation available, which, according to the highest medical evidence, would reduce the danger to a minimum.

If the first were adopted, then a substitute must be found, but before dealing with that phase of the subject it is necessary to give some evidence on the question of regulation. The German law has forbidden the mixing of white-lead by hand, and insists that the rubbing of fresh or old paint with sand-paper or pumice may be done only after previous damping. It also requires that the contractor for house painting shall provide caps and suitable overalls, kept in order and washed, and temporary working sheds where the men may keep their street clothing, keep and eat their lunches, supplied with warm water, soap, wash basins, nail brushes, and towels. The employer must suspend from work any painter known to be suffering from lead-poisoning. The law regulating painting

Exhibit No. 7—*continued.*

in factories also forbids the use of alcohol and tobacco, and provides for medical inspection of employees at least every six months. Austria has similar laws, and also forbids the use of white-lead for inside work, except in certain cases. Provision is also made for instructing workmen as to the dangers of lead. Other leading European countries, namely Belgium and Switzerland, have considered the subject since the French controversy, and have adopted a policy of regulations of 1905, which has caused according to the latest available statistics a reduction of cases of lead-poisoning for the hospitals in Berlin from 390 in 1905 to 250 in 1908. The Austrian regulations of 1908 caused a reduction of cases of lead-poisoning among the house-painters, members of the Viennese Compulsory Sickness Insurance Fund, from 208 in 1907 to 138 in 1910.

The simple regulations which have been adopted by these Governments have all for their chief object the avoidance of the lead dust, which is ample proof that it is generally agreed to be the prime cause of lead-poisoning among painters. The extent of lead-poisoning among industrial workers has long been the subject of serious concern to the factory inspection authorities in Great Britain. By the Factory Act of 1895, regulations effective 1st January, 1896, were introduced in Great Britain requiring reports of lead-poisoning in a list of factory industries, and endeavouring to control the use of lead as far as practicable in order to safeguard the health of the workers. As a result of the regulation the number of causes of lead-poisoning has been greatly reduced, so that the average annual number reported in the five-years period, 1910–1914, was less than one-half the number annually reported in the five-years period 1896–1900. Owing to the difficulty of securing reports of cases of lead-poisoning occurring outside of factories, information at all complete has been lacking as to the extent of lead-poisoning among painters employed on buildings.

On 20th January, 1911, the Home Secretary (in response to a long continual and insistent public demand) appointed two Commissioners to study the danger tending on the use of paints containing lead to the health of the persons engaged on painting, and to consider and report what should be done to obviate or reduce the danger. The report of the Commissioners, made after extensive investigation, was issued on 5th May, 1915.

The enactment of a law prohibiting the importation, sale, or any use of paint material containing more than 5 per cent. of its dry weight of a soluble lead compound, is the principal recommendation of the Commissioners.

The Commissioners recognise that, in connection with such a restriction as it recommends, it would be necessary to exempt specifically certain classes of colour, such as those used by artists, and that it would be desirable to authorise the granting of exemption applicable only to special branches of the painting industry, where it would be shown to the satisfaction of the Minister that the use of lead paints containing more than 5 per cent. of soluble lead cannot as yet be dispensed with. In such cases it is considered desirable that the Minister be given power to enforce adequate precautionary measure, *i.e.*, abolition of dry rubbing down, provision for overalls, medical examination, and the like, all of which should be made compulsory, and should be enforced by adequate inspection.

The recommendations of the Committee are signed by seven of its eight members, one a representative of the Association of Master Painters, submitting a minority report. This minority report vigorously challenges the conclusions and recommendations of the other members of the Committee, and urges that regulations should at least be given a thorough trial before prohibiting the use of so valuable a paint material as white-lead. This recommendation is based upon the claim that the centre of danger in all industries is the dust produced, and in painting the dust produced in process harmful to the health of the workers rests on the dry rubbing of lead paint; therefore, it is suggested that the rational course is to prohibit under heavy penalties the practice of dry rubbing down and thus remove the great source of danger from poisoning by lead dust.

Two methods of dealing with the evil suggested themselves: either (1) the industry must be governed by a strict code of regulations; or (2) the use of lead must be prohibited altogether, or at any rate restricted within very narrow limits.

The proposals to deal with the situation by regulations the Committee regards as impossible, for four principal reasons: (1) the inadequacy of regulations to cope with the evil; (2) the difficulty of prohibiting of dry rubbing down, the most frequent cause of lead-poisoning; (3) the cost and difficulty of enforcing regulations by adequate inspection.

The second method for the prevention of lead-poisoning, by the prohibition of the use of lead or its restrictions within very narrow limits, was favoured by a majority of employers who appeared before the Committee.

The Committee found from the evidence before it that not only are leadless paints suitable for interior works, but they had been used successfully on exterior surfaces

Exhibit No. 7—continued.

The leadless paints claimed to be of sufficient durability for exterior use, were found already obtainable in considerable numbers with every indication that legislation affecting the amount of lead permissible in paints would give a greater impetus to the manufacture of the non-poisonous substitutes.

At Brisbane, on 12th July, 1918, a deputation from the Queensland Branch of the British Medical Association, waited on the Home Secretary, and urged that certain measures be embodied in the new Health Bill, which would protect the community from danger of health produced by lead-poisoning. The arguments used were more on account of children than the operatives. They considered that the painting of verandahs, railings, and fences with lead paints constituted a danger to children owing to the tendency of lead to powder when dry. A counter deputation on 19th July, by employers in the painting industry ridiculed the idea that lead-poisoning among children emanated from the source mentioned by the doctors, and suggested that the trouble probably lay in the tank system which prevails to a large extent in Brisbane.

The Union also interviewed the Minister and advocated the prohibition of lead paint which contained more than 5 per cent. lead. The employers and doctors then held a conference with the result that a joint recommendation was made to the Home Secretary as follows :—

- (1) That in order to prevent lead-poisoning in children it is necessary to prevent the powdering of lead paint within their reach.
- (2) That as the powdering occurs on fences, palisadings, and verandah railings exposed to the weather, it is necessary to use a paint for those surfaces which does not easily powder.
- (3) That a paint is used which is manufactured on a base of not greater than 60 per cent. of carbonate of lead, and not less than 40 per cent. of zinc oxide. That such paint be ground by the manufacturer either in paste or liquid form, and must bear the manufacturer's guarantee to the effect that it complies with this regulation.
- (4) That the vehicle used in such paint be a mixture of genuine pale boiled oil (linseed) and genuine raw linseed oil.
- (5) That the surfaces specified above, and within the reach of children must be painted every three years in order to prevent powdering. It would be advisable that these surfaces be washed down annually.
- (6) That the total prohibition of white-lead is unnecessary.

As the Bill has not yet been presented to Parliament, the intended legislation is still unknown.

EXHIBIT No. 8.

YEARLY Medical and Surgical Report of His Majesty's Australian Dockyard between the 1st of January and the 31st of December, 1920.

Diseases.	Cases remaining by last Return.	Since added to the List.	Discharged to Duty.	Sent to Hospital.	Dead.	Number now on the List.	Total number of cases since added to the List.	Total days' sickness from each Disease, &c.
GENERAL DISEASES.								
Chicken-pox	...	1	1	...	...	...	1	17
Scarlet Fever	...	1	1	...	...	...	1	45
Influenza	7	233	238	...	2	...	233	2,838
Ague	1	18	19	...	...	...	18	360
Erysipelas	...	1	1	...	...	...	1	6
Syphilis, Secondary	...	2	2	...	...	...	2	34
Gonorrhoea	1	3	4	...	...	...	3	50
Poisoning, various	1	...	1	...	...	...	...	7
Rheumatism	...	1	1	...	...	...	1	22
New Growths, malignant	...	5	4	...	1	...	5	191
Diabetes	...	2	2	...	...	...	2	129
Other Diseases	1	...	1	...	...	...	...	14

Exhibit No. 8—continued.

Diseases.	Cases remaining by last Return.	Since added to the List.	Discharged to Duty.	Sent to Hospital.	Dead.	Number now on the List.	Total number of cases since added to the List.	Total days' sick- ness from each Disease, &c.
LOCAL DISEASES.								
<i>Diseases of the Nervous System and Organs of the Special Senses.</i>								
Epilepsy	...	3	3	...	...	...	3	11
Other Diseases.....	4	68	67	...	...	5	68	1,087
Diseases of the Eye.....	1	16	17	...	...	...	16	238
„ Ear.....	...	10	10	...	...	...	10	290
„ Nose	...	13	12	...	...	1	13	109
<i>Diseases of the Circulatory System.</i>								
Diseases of the Heart { Organic	2	22	22	...	...	2	22	398
Functional.....	...	16	14	...	...	2	16	426
Disease of the Veins	...	6	6	...	...	...	6	98
Other Diseases.....	...	4	4	...	...	...	4	110
<i>Diseases of the Respiratory System.</i>								
Catarrh	3	399	400	...	...	2	399	2,902
Bronchitis	2	126	125	...	1	2	126	1,466
Pneumonia.....	...	2	2	...	...	...	2	101
Phthisis	1	1	2	...	...	...	1	101
Pleurisy	...	13	13	...	...	...	13	134
Asthma	...	3	2	...	...	1	3	80
Other Diseases.....	1	...	1	...	...	...	...	7
<i>Diseases of the Digestive System.</i>								
Mouth, Teeth, &c.	...	15	14	...	...	1	15	84
Sore Throat	...	35	34	...	...	1	35	248
Tonsilitis	1	47	48	...	...	...	47	410
Diseases of the Stomach.....	...	163	155	...	...	8	163	1,629
Diseases of the Intestines	1	115	108	...	3	5	115	1,472
Hernia	1	6	7	...	...	...	6	299
Hæmorrhoids.....	...	19	19	...	...	...	19	245
Other Diseases of the Liver	...	2	2	...	...	...	2	53
<i>Diseases of the Lymphatic and Glandular System.</i>								
Other Diseases.....	...	8	8	...	...	...	8	109
<i>Diseases of the Urinary and Generative Systems.</i>								
Diseases of the Kidneys.....	...	5	4	...	...	1	5	122
Diseases of the Bladder	1	11	12	...	...	...	11	204
Varicocele.....	...	1	1	...	...	...	1	3
Orchitis.....	...	2	1	...	...	1	2	45
Other Diseases.....	1	17	18	...	...	...	17	342
<i>Diseases of the Organs of Locomotion.</i>								
Diseases of the Bones.....	...	2	2	...	...	...	2	30
„ Joints	...	2	2	...	...	...	2	10
„ Bursæ	...	3	3	...	...	...	3	37
Other Diseases.....	1	136	133	...	...	4	136	1,751

Exhibit No. 8—continued.

Diseases.	Cases remaining by last Return.	Since added to the List.	Discharged to Duty.	Sent to Hospital.	Dead.	Number now on the List.	Total number of cases since added to the List.	Total days sickness from each Disease, &c.
<i>Diseases of the Connective Tissue and Skin.</i>								
Abscess	2	12	13	...	...	1	12	138
Ulcer	...	3	3	...	...	...	3	22
Boil	1	32	33	...	...	...	32	396
Other Diseases of the Skin.....	...	46	45	...	...	1	46	668
INJURIES.								
<i>Local.</i>								
Burns and Scalds.....	...	27	27	...	...	...	27	259
Injuries	10	465	449	16	...	10	465	6,952
<i>Unclassified.</i>								
Undetermined	8	...	8	...	...	...	...	313
Total	52	2,143	2,124	16	7	48	2,143	27,112

Number of all ranks and ratings in the yard during the period for which this return is rendered, viz. : Between—	Total of each Quality.
Officers and staff	337
Men classed according to their trade or employment—	
Assistant General Manager's Department	3,060
Engineer-Manager's Department	1,120
Electrical-Manager's Department	423
Store Officers.....	112
Works and Railway Officers	8
Works and Railway men	60
Total	5,120

Of the patients under treatment there have been : Under seven days, 1,026; seven days and under fourteen, 641; fourteen days and upwards, 476.

MEDICAL and Surgical Report of His Majesty's Australian Dockyard between 1st July and the 30th September, 1920.

Diseases.	Cases remaining by last Return.	Since added to the List.	Discharged to Duty.	Sent to Hospital.	Dead.	Number now on the List.	Total number of cases since added to the List.	Total days' sickness from each Disease, &c.
GENERAL DISEASES.								
Chicken-pox	...	1	1	...	...	...	1	17
Influenza	10	78	79	...	...	9	78	943
Ague	...	3	1	...	...	2	3	30
Rheumatism.....	...	1	1	...	...	...	1	22
New Growths, malignant	1	1	1	...	...	1	1	53
Diabetes	1	...	1	...	...	...	...	90

Exhibit No. 8—continued.

Diseases.	Cases remaining by last Return.	Since added to the List.	Discharged to Duty.	Sent to Hospital.	Dead.	Number now on the List.	Total number of cases since added to the List.	Total days' sick- ness from each Disease, &c.
LOCAL DISEASES.								
<i>Diseases of the Nervous System and Organs of the Special Senses.</i>								
Epilepsy	...	1	1	...	...	...	1	3
Other Diseases.....	1	26	24	...	...	3	26	215
Diseases of the Eye	...	2	1	...	...	1	2	14
" Ear.....	...	3	2	...	...	1	3	19
" Nose	...	7	7	...	...	...	7	63
<i>Diseases of the Circulatory System.</i>								
Diseases of the Heart ... { Organic	...	4	3	...	...	1	4	59
{ Functional.....	...	3	3	...	...	...	3	24
Diseases of the Veins	...	2	2	...	...	...	2	13
Other Diseases.....	...	2	1	...	...	1	2	7
<i>Diseases of the Respiratory System.</i>								
Catarrh	4	104	105	...	...	3	104	762
Bronchitis	5	27	29	...	...	3	27	306
Phthisis	...	1	1	...	...	...	1	10
Pleurisy	...	3	2	...	...	1	3	26
<i>Diseases of the Digestive System.</i>								
Mouth, Teeth, &c.	...	5	5	...	...	...	5	35
Sore Throat	...	15	14	...	...	1	15	96
Tonsilitis	1	10	9	...	...	2	10	71
Diseases of the Stomach.....	3	40	39	...	...	4	40	303
" Intestines	1	11	7	...	2	3	11	124
Hernia	...	1	...	...	...	1	1	30
Hæmorrhoids.....	1	1	2	...	...	...	1	37
<i>Diseases of the Lymphatic and Glandular System.</i>								
Other Diseases.....	...	1	1	...	...	...	1	4
<i>Diseases of the Urinary and Generative System.</i>								
Diseases of the Kidneys.....	...	1	1	...	...	...	1	22
" Bladder	...	7	5	...	...	2	7	48
Other Diseases.....	2	...	2	...	...	...	...	80
<i>Diseases of the Organs of Locomotion.</i>								
Other Diseases.....	4	44	44	...	...	4	44	471
<i>Diseases of the Connective Tissue and Skin.</i>								
Abscess	...	5	5	...	...	...	5	65
Ulcer	...	3	3	...	...	...	3	22
Boil	...	12	11	...	...	1	12	98
Other Diseases of the Skin.....	1	18	16	...	...	3	18	139
INJURIES.								
<i>Local.</i>								
Burns and Scalds.....	1	12	11	...	...	2	12	87
Injuries	7	103	96	1	...	13	103	1,505
Totals.....	43	558	536	1	2	62	558	5,913

Exhibit No. 8—continued.

Number of all ranks and ratings in the yard during the period for which this return is rendered, viz.: Between—	Total each Quality.
Officers and Staff	332
Assistant General Manager's Department	2,474
Engineer Manager's Department	913
Electrical Manager's Department	400
Store Officer	192
Officers and Staff Naval Works	11
Men, Naval Works	79

Total 4,338

Of the patients under treatment, there have been : Under seven days, 288; seven days and under fourteen, 160; fourteen days and upwards, 110.

Name of Person.	Age.	Quality.	Injury or Disease.	Date of Death, Issue of Truss, Injury and Discharge, to Hospital.	How disposed of.		Remarks. (How injured, &c.)
					Date.	Whither.	
Connors, E.* 4593.	28	Painter and Decorator.	Concussion	1920. 28 Aug. ...	1920. 28 Aug. ...	Balmain Hospital.	Unloading beds on "Ade-laide," for s.s. "Coec." Chain of crane caught under hook on cover and struck him on back of head.
Mitchellmore, W.† 4774.	43	Painter ...	Compound fracture, Right great toe bruise 2nd and 3rd toes.	.....	.....	.....	.....
White, J. 4025.	63	Labourer	Peritonitis Cancinoma of large bowel.	21st July	Died	At home	.....
Edgar, F. 1490.	47	Labourer	Peritonitis Tuberculosis.	19 Aug. ...	Died	At home	.....

Influenza.—78 cases. Generally a mild type affecting principally the air passages. Average days lost, 10.

Rheumatism.—1 case. Rheumatic Fever.

New Growths (Malignant).—1 case. Epithelioma, lower lip.

Other Diseases (C.N.S.).—26 cases. Neurasthenia—Neuritis—Shell Shock—Neuroses (War)—Sciatica.

Diseases of the Eye.—2 cases. Conjunctivitis.

Diseases of the Ear.—3 cases. Otitis Media—Otorrhœa—Furunculosis.

Diseases of the Nose.—7 cases. Polypi—Enlarged Turbinates—Deflected Septa.

Diseases of the Heart... { (Organic).—Aortic—Mitral.
(Functional).—Tachycardia—Arrhythmia.

Other Diseases.—Arterio-sclerosis.

Diseases of Veins.—Varicose.

Catarrh.—Mild nasal, occasionally associated with headache, temperature never much above F. 99.

Recovery within a week. Average days lost —.

Mouth and Teeth.—Dental caries—Pyorrhœa—Stomatitis.

Tonsils.—Follicular.

Diseases of Stomach.—Gastritis—Gastric Ulcer.

Diseases of Intestines.—Enteritis—Entero-colitis—Colitis—Appendicitis.

Hernia.—Inguinal.

Lymph-glandular System (Other Diseases).—Adenitis (Parotid and Submaxillary).

Diseases of Kidneys.—Calculus.

Diseases of Bladder.—Cystitis.

Genito-urinary System (Other Diseases).—Prostatitis—Epididymitis (Non-specific).

Organs of Locomotion (Other Diseases).—Lumbago—Myositis—Rheumatism.

Abscess.—Face—Finger—Leg—Forearm.

Ulcer.—Leg (Varicose).

Boil.—Alveolar—Buttock—Axillary.

Skin (Other Diseases).—Sycosis—Acne—Dermatitis—Furunculosis—Impetigo—Urticaria—Eczema.

Men examined for Lead : 120 painters and decorators, 68 professional painters, and 50 electricians.

* Discharged from hospital 2nd September, 1920 † Shown as hospital case in last return. Discharged from hospital 18th July, 1920. Discharged to duty 6th September, 1920.

EXHIBIT No. 9.

The Australian Provincial Assurance Association, Ltd.,
Fire and Marine Department.

Head Office : A.P.A. Building, 77 King-street,
Sydney, 2nd July, 1921.

The Insurance Commissioner,
State Government Insurance Office,
Brisbane.

Dear Sir, NEW SOUTH WALES BOARD OF TRADE.

The Board of Trade are making an inquiry into the effects of the use of white-lead in industrial pursuits.

I was yesterday called upon to give evidence on the case, and produced my report for year ending 30th June, 1920.

Table 9 of the Statistical Returns deals with Compensation Claims for Arsenic, Copper, Lead, and other Metalliferous Poisonings.

The Commission was particularly desirous of ascertaining the number of cases of lead-poisoning reported and the amount of compensation paid in respect thereto, distinguishing fatal, permanent disablements and temporary disablements.

As the claims are very few in number, I should be very much obliged if you would arrange to address the President of the Board of Trade, giving him the analysis desired and stating that you do so at my request.

Trusting that I am not imposing too far upon your good nature.

Yours faithfully,
(Sgd.) JNO. GOODWYN,
Manager for Australasia, Fire and Marine Department.

State Government Insurance Office,
Parbury House, Eagle-street,
Brisbane, 7th July, 1921.

B.T. 21/1742.

Dear Sir, NEW SOUTH WALES BOARD OF TRADE.

I am in receipt of a letter dated 2nd instant from Mr. J. Goodwyn, Manager of the Fire and Accident Branch of the Australian Provincial Assurance Association, Sydney, and late Commissioner of this office, in connection with an enquiry into the effects of the use of white-lead in industrial pursuits, and in which he requests me to forward you an analysis of cases of lead-poisoning reported, and the amount of compensation paid in respect thereto, distinguishing fatal, permanent disablement, and temporary disablement.

I accordingly have pleasure in furnishing the desired analysis :—

Disablement.	No. of Claims Reported.	Amount of Compensation Paid.
		£ s. d.
Fatal	2	1,061 13 9
Permanent.....	...	.....
Temporary	20	622 0 1
Totals	22	£1,683 13 10

Yours faithfully,
(Sgd.) JOHN A. WATSON,
Insurance Commissioner.

The President, Board of Trade,
Sydney, N.S.W.

EXHIBIT No. 10.

PLUMBISM CASES.

- Charles Lowe 25 March, 1919. O'Brien, J., Secretary, Operative Painters' Union *re* C. E. Lowe, suffering from lead-poisoning. Informed *re* certificate from certifying surgeon and given letters of advice.
- Charles E. Crump 22 April, 1919. Employed by the Education Department for over twenty years, and has developed lead-poisoning—worked as a painter. Dr. F. J. Graham's certificate of 17th April, 1919, states that he is suffering from the effects of lead-poisoning, and must relinquish duty for a few months to enable him to regain his strength. Informed him of certifying surgeon's address—filled in report for him.
- 2.30 p.m. Called with Dr. Nash's certificate of disablement. Instructed him to keep copies of both certificates when forwarding them to his employer for transmittal to the Treasury Insurance Board.
- 30 April, 1919. Crump called again. Case still pending, not yet paid.
- 5 May, 1919. Certificate of disablement by Dr. Nash. Voucher certified as correct.
- William H. Money (?) 21 October, 1919. O'Brien, Secretary, Painter's Union. Case of lead-poisoning. Informed him *re* obtaining certificate of disablement from Dr. J. B. Nash. Gave him form of Notice of Accident.
- A. B. Jewry(125049). 22 November, 1919. Mr. Burt stated that he finished at the Manly Company on 22nd May last, and is too ill even to come to the telephone.
- 27 November, 1919. Painter (Jewry). Secretary called claim made by the Union—discussed certificate of disablement, indemnity, &c. Revised draft letter to Secretary of Painters and Decorators' Union.
- 3 December, 1919. O'Brien, Secretary, Operative Painters, *re* aggravation in Jewry's case.
- 29 March, 1920. Port Jackson Co. Secretary respecting case of O'Brien's lead poisoning. Workman paid £10 and has now made a request for £20 more. Cockatoo Dockyard and Sydney Ferries only employed him for about a couple of days.
- 28 June, 1920. Mark Mitchell *re* case against Port Jackson s.s. Co. for lead-poisoning. Settlement suggested with C. A. Coghlan & Co. on the basis of 100 weeks at what rate? His award rate or average weekly earnings. Discussed Smiles *v.* Coles.
- W. H. Hill 14 December, 1919. William Hill, working for British Imperial Oil Co., Greenwich. Suffering from lead-poisoning; working for the same employer for fourteen years, during which he was off work bad for two or three years. Worked eight months during the last twelve months, and knocked off about a fortnight ago.
- 13 December, 1919. "Leaded" at the British Imperial Co's. Works. Produced certificate of disablement from Dr. J. B. Nash. Instructed him regarding notice of claim.
- 26 February, 1920. Dr. Nash *re* further examination of W. H. Hill by Prof. Mills and Dr. Gregory O'Neill.
- 30 April, 1920. Hill, W. H., *re* Dr. Nash's certificate for plumbism. Letter respecting examination by Prof. Mills and Dr. Gregory O'Neill of 4th February last to be sent to Mr. N. Montagu, his solicitor, provided by the Legal Aid Branch.
- 21 July, 1920. District Court respecting Hill *v.* British Imperial Oil Co. (See xvi, I.G., 869.)
- Gilberd 14 December, 1919. O'Brien, Painters' Union, *re* Gilberd's case. (See also xvi, I.G., 869.)
- Pickering, G..... 11 February, 1920. Geo. Pickering employed as colourman at the Government Printing Office three months and for a number of years has worked in the State and Commonwealth Governments. Dr. Nash gave certificate dated 11th February, 1920. Dr. Hamilton Marshall wants him in Sydney Hospital on Monday next.
- 25 March, 1920. Pickering, G. 11th February. Working for the Public Works Department, colourman in the paint-shop. Suffering from plumbism—see entry 11th February, 1920. Name supplied by Mr. O'Brien, Painters' Union.

Exhibit No. 10—*continued*.

- Frank Farr 19 May, 1920. O'Brien, Painters' Union, respecting Farr and Bohm (deceased). Certifying Surgeon's claim.
- Louis Bohm 19 May, 1920. Ditto.
- William Peach 4 June, 1920. O'Brien, Operative Painters. Respecting claim by certifying Surgeon on account of Peach and Miner. 136447.
15 July, 1920. Dr. Nash respecting Peach's case.
- Ernest Miner 4 June, 1920. O'Brien, Operative Painters. Respecting claim by certifying surgeon on account of Peach and Miner.
- Joseph Shannon 7 July, 1920. 230 Catherine-street, Leichhardt. Husband worked at Lysaght's eleven years, and is now dying of lead-poisoning in Lewisham Hospital. Referred her to certifying surgeon. Gave her extracts from the Act and letter of advice.
14 July, 1920. Shannon—Lead-poisoning at Lysaght's; off work since February. Gave her Dr. Nash's certificate and copy, and retained one copy.
23 July, 1920. Shannon, Mrs., regarding claim in respect of death of husband, Lysaght', Ltd. Again after seeing the Manager, Cohen, of State Insurance Office, 41 Pitt-street.
- Chas. S. Mowbray 19 July, 1920. Mowbray working at Mort's Dock as ship's joiner, with red-lead. Five months at Coast Hospital. Sent him round to Dr. Nash.
21 July, 1920. Mowbray for certificate of Dr. Nash that he is suffering from plumbism.
22 July, 1920. Mowbray: Obtained certificate and posted it to him at Balmain.
28 July, 1920. Mowbray: Date of disablement given by Dr. Nash in certificate did not go back to his entry into hospital. Mort's Dock Co. will let him know this afternoon whether available.
31 July, 1920. Mowbray: Lead-poisoning case—Mort's Dock and Eng. Co. without admitting liability, paid £2 a week for two weeks. Dating back certifying surgeon's certificate of disablement.
12 August, 1920. Mowbray: *re* amendment of certificate of certifying surgeon to antedate the commencement of disablement. See *Birks v. Stafford Coal Co.*, 1913, W.C.I.C., 757.
- Joseph Parks 19 July, 1920. Dr. Nash respecting Joseph Parks, see 139727—case at Reception House. Dr. Nash said he would see me this afternoon.
21 July, 1920. Dr. Nash *re* Parks and Mowbray.
- J. Holbon Warden..... 21 October, 1920. Warden: *re* Dr. Nash's certificate of disablement. Sun Fire Office rung up. Painter suffering from lead-poisoning. Working for Fletcher and Mason, Botany-road—off three weeks. Dr. Bruce, of Enmore, states Warden is suffering from lead-poisoning.
23 October, 1920. Warden, J. H., respecting lead-poisoning. Sun Office wants a further examination—advised him to undergo it. Worked during the twelve months preceding disablement for several employers.
1 November, 1920. Warden—lead-poisoned—painter, £4 17s. per week. Thoroughly examined by Dr. Gregory O'Neill. Insurance Company paid £8 compensation for four weeks. Discussed light employment, &c.
- E. S. Morieson 27 October, 1920. Morieson, E. S., working for Government Printing Office—Lead colic. £4 17s. per week; off work on 26th October, 1920.
29 October, 1920. Dr. Nash respecting Morieson's certificate of disablement.
- Thomas Osborne 29 October, 1920. Osborne, T., painter with lead-poisoning, referred him to Dr. Nash with letter. Came from the Operative Painters' Union. Copy of certificate of disablement made out and sent him on to the Guardian Office.
- Ernest A. Comley 12 November, 1920. Comley, E. A., working for Simmons Ltd.; lead-poisoning. Was off work from 6th to 23rd October. Dr. Macintosh's certificate dated 30th October. Gave him letter to Dr. Nash.
15 November, 1920. Comley: Dr. Nash's certificate of disablement. Discussed partial incapacity.
17 November, 1920. Comley: Made out notice of injury and claim, also copy of certificate of disablement for service on Simmons Ltd.
18 November, 1920. Comley: Notice on Simmons Ltd. Told him to call again in a few days.

Exhibit No. 10—continued.

- Osborne 7 March, 1921. Mrs. Thomas—respecting husband ill with lead-poisoning. 49–50 in August. Being paid £2 a week. Drawn £52—26 weeks. Employer, Sayers, Rose Bay; Insurer, Guardian Assurance Co. Lump sum about £500.
- 21 March, 1921. Mrs. Osborne (family of thirteen)—
 1. Husband lead poisoned. Worked at A. G. Sayers, Rose Bay.
 2. Daughter, packer, struck on head at Arnotts' . . .
- Brown 19 November, 1919. O'Brien, Secretary, Painters' Union, *re* Brown's case.
 22 November, 1919. Brown's case. Painter who died at Kogarah Hospital. Discussed medical evidence required for the Education Department and degree of illness.
 3 December, 1919. O'Brien, Secretary, Painters' Union, for return of Dr. Randall's certificate in Brown's case.

EXHIBIT No. 11.

N.S.W. Board of Trade, University Chambers,
 78 Elizabeth-street, Sydney, 29 June, 1921.

The Government Statistician, Sydney.

Subject: Statistics of Mortality of Painters.

The Board of Trade is inquiring into the causes of death in the Painting industry.

I should be glad if you would be so good as to supply, for the use of the Board, any information which you may have available with reference thereto.

It is thought by the section of the Board dealing with this matter that much assistance would be afforded by a table showing, if possible, separately for painters of buildings, painters in ships, painters in railway workshops, painters in factory workshops, and painters and dockers engaged upon hulls of ships, the number of deaths in quinquennial age-groups from plumbism, Bright's Disease, phthisis, cardio-vascular disease, any disease which research may show to be more characteristic of painters than of the general adult male population, all diseases (Classes I-IX and XIV), and all causes. Such statistics covering a period of five years would probably throw much light on the question.

It is hardly likely that the death certificates would enable so exhaustive a subdivision of the occupation to be made as that indicated above. Something in that direction might, however, be possible.

I shall be glad to learn what steps you may be willing to take in this connection.

(Sgd.) D. T. SAWKINS,
 Statistical Officer.

New South Wales Bureau of Statistics,

The Statistical Officer, N.S.W. Board of Trade,
 78 Elizabeth-street, Sydney.

Sydney, 6 July, 1921.

Subject: Statistics of Mortality of Painters.

Reference: Your letter of the 29th June.

In answer to your request, I have pleasure in forwarding, for the information of the Board of Trade, the attached statement showing the principal causes of death, in age-groups of house painters, including painters undefined, during the five years, 1909 to 1913, and during 1920, which information I had more or less readily available.

I forward, also, a statement which may be of interest to the Board and which I have had compiled for the use of one of the parties to the inquiry before the Board.

With reference to the wish of the Section of the Board dealing with this matter to have a table showing separate information for different kinds of painters, I regret that it is not practicable, as it could not be done without enormous trouble, and even then I doubt if the result would be satisfactory.

In any case, there are the difficulties which I pointed out to the Board in a letter to them on the 10th September, 1919, in any consideration of occupational mortality in Australia. Particularly I refer to the changes from one occupation to another, which have a material effect on the mortality in occupations which are detrimental to health. Deaths which occur after the transfer may be the direct result of the first occupation, but are recorded under the occupation which is being followed at the time of death.

The table which I forward herewith shows that of 72 deaths, including 4 children, from lead poisoning during the twelve years 1909 to 1920, 15 or 16 were in occupations which did not involve any danger from the use of lead.

(Sgd.) H. A. SMITH,
 Government Statistician.

Exhibit No. 11—continued.

NUMBER of Deaths of House Painters and of Painters undefined in New South Wales during 1909-13 and 1920:—

Diseases.	Year.	Ages—							Not stated
		Total.	15-24.	25-34.	35-44.	45-54.	55-64.	65 and Over.	
Typhoid.....	1909-13...	7	3	3	1	...	...	...	...
	1920	1	...	...	...	1	...	...	...
Influenza	1909-13...	2	...	1	1	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Tuberculosis (all forms)	1909-13...	48	2	14	11	14	6	1	...
	1920	11	...	5	1	5	...	...	...
Cancer.....	1909-13...	19	...	...	1	6	8	4	...
	1920	5	...	...	...	2	2	1	...
Rheumatism	1909-13...	2	...	...	...	...	2	...	...
	1920	...	...	...	...	...	...	...	...
Diabetes	1909-13...	1	...	...	...	...	1	...	...
	1920	...	...	...	...	...	...	...	...
Anæmia, Chlorosis, Leucæmia	1909-13...	5	...	...	1	...	2	2	...
	1920	1	...	...	...	...	...	1	...
Alcoholism	1909-13...	1	...	...	...	...	1	...	...
	1920	1	...	...	...	...	...	1	...
Lead Poisoning	1909-13...	6	1	...	3	2	...	...	...
	1920	2	...	1	...	1	...	...	...
Other General Diseases	1909-13...	3	...	2	...	...	...	1	...
	1920	...	...	...	...	...	...	...	...
Diseases of the Nervous System.....	1909-13...	45	1	4	5	15	11	9	...
	1920	11	...	...	3	1	2	5	...
Organic Diseases of the Heart	1909-13...	42	2	2	5	6	7	20	...
	1920	10	...	1	2	1	4	2	...
Others of the Circulatory System.....	1909-13...	11	...	1	1	4	1	4	...
	1920	3	...	...	...	...	...	2	...
Bronchitis.....	1909-13...	7	...	...	...	...	2	5	...
	1920	1	...	...	...	...	1	...	...
Pneumonia	1909-13...	14	1	3	2	2	2	4	...
	1920	3	...	...	...	1	1	1	...
Pleurisy	1909-13...	2	...	...	1	1	...	...	...
	1920	...	...	...	...	...	...	...	...
Fibroid Phthisis	1909-13...	...	...	...	...	...	...	...	...
	1920	1	...	...	...	1	...	...	...
Others of Respiratory System	1909-13...	4	...	...	...	...	2	2	...
	1920	1	...	...	...	1	...	...	...
Cirrhosis of Liver	1909-13...	6	...	1	1	2	1	1	...
	1920	1	...	...	...	...	1	...	...
Other Diseases of Liver.....	1909-13...	5	1	1	...	...	3	...	...
	1920	...	...	...	...	...	...	...	...
Other Diseases of Digestive System.....	1909-13...	12	1	3	...	1	2	5	...
	1920	7	...	2	1	...	3	1	...
Bright's Disease	1909-13...	57	1	3	9	16	14	14	...
	1920	9	...	...	2	2	3	2	...
Others of Genito-Urinary System	1909-13...	5	...	...	...	1	2	2	...
	1920	2	...	1	...	1	...	...	...
<i>Violence—Accident.</i>									
Burns and Scalds.....	1909-13...	1	...	...	...	...	1	...	...
	1920	...	...	...	...	...	...	...	...
Deleterious Gases	1909-13...	...	...	...	...	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Drowning	1909-13...	3	1	1	1	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Firearms	1909-13...	...	...	...	...	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Fall	1909-13...	14	1	2	1	3	5	2	...
	1920	5	...	1	1	2	1	...	...

Exhibit No. 11—continued.

Diseases.	Year	Ages—							
		Total.	15-24.	25-34.	35-44.	45-54.	55-64.	65 and over.	Not stated
Mines.....	1909-13...	...	...	...	...	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Machines	1909-13...	3	1	...	2	...	...	...	...
	1920	...	...	...	...	...	...	...	...
Railways and Tramways	1909-13...	2	...	...	...	2	...	...	...
	1920	...	...	...	...	...	...	...	...
Vehicles and Horses	1909-1	2	...	1	...	...	...	1	...
	1920	1	...	...	...	...	1	...	...
All Other	1909-13...	7	3	2	1	...	1	...	...
	1920	...	...	...	...	...	...	...	...
Other Violence.....	1909-13...	20	...	7	4	7	1	1	...
	1920	5	...	2	1	1	1	...	...
All other causes	1909-13...	18	...	...	...	...	4	14	...
	1920	5	...	...	...	1	2	2	...
Total	1909-13...	374	19	51	51	82	79	92	...
	1920	86	...	13	11	21	23	18	...

DEATHS of Males of Specified Occupations, in Age-Groups, from Lead Poisoning, in New South Wales, during the twelve years, 1909 to 1920.

Occupation.	Age Groups.							
	Total.	0-14.	15-24.	25-34.	35-44.	45-54.	55-64.	65 and Over.
Printer and Compositor	5	...	...	1	2	2	...	...
House Painter and Painter undefined	22	...	1	2	6	8	5	...
Plumber.....	4	...	...	...	2	1	1	...
Miner—Silver lead	19	...	...	1	3	8	6	1
Smelter—Lead	4	...	...	1	...	1	1	1
Coach Painter	1	...	...	...	...	1	...	...
Signwriter	1	...	...	1	...	...	...	...
Miner—Gold	2	...	...	1	...	...	...	1
Tool Sharpener	1	...	...	...	1	...	...	...
Grocer	2	...	...	...	1	1	...	...
Builder.....	1	...	...	...	...	...	...	1
Engine-driver	2	...	...	...	1	1	...	...
Motor-driver	1	...	...	...	1	...	...	...
Farmer	1	...	...	...	...	1	...	...
Labourer	6	...	...	...	2	2	2	...
Dependent.....	4	4	...	...	...	...	...	...
Total	76	4*	1	7	19	26	15	4

*Includes 2 deaths in 1909, each aged 1 year
 Includes 1 death in 1912, aged 2 years
 Includes 1 death in 1913, aged 7 years

} All from Broken Hill, and due to continued drinking of water impregnated with lead.

Exhibit No. 11—continued.

DEATHS of Males of Specified Occupations, in Age Groups, from Lead Poisoning, in New South Wales, during the five years, 1909 to 1913.

Occupation.	Age Groups.							
	Total.	0-14.	15-24.	25-34.	35-44.	45-54.	55-64.	65 and Over.
Printer and Compositor	4	...	...	...	2	2	...	...
House Painter and Painter undefined	6	...	1	...	3	2	...	...
Plumber.....	1	...	...	...	...	1	...	...
Miner—Silver lead	3	...	...	...	1	1	1	...
Smelter—Lead	1	...	...	...	...	1	...	...
Coach Painter	1	...	...	...	...	1	...	...
Miner—Gold	1	...	...	1	...	...	...	...
Tool Sharpener	1	...	...	...	1	...	...	...
Grocer.....	1	...	...	...	...	1	...	...
Dependent.....	4	4	...	...	...	...	...	...
Total	23	4*	1	1	7	9	1	...

DEATHS of Male Compositors, Painters, Plumbers, Miners, and Lead Smelters, over 15 years of age from all causes, during five years, 1909 to 1913.

Occupation.	Age Groups.						
	Total.	15-24.	25-34.	35-44.	45-54.	55-64.	65 and Over.
Printer and Compositor.....	232	32	28	46	41	35	50
House Painter and Painter undefined.....	373	18	51	51	82	79	92
Plumber.....	159	23	20	25	33	25	33
Miner—Silver lead	485	49	92	111	116	64	53
Smelter—Lead	18	2	2	2	3	5	4
All Males over 15	36,502	2,591	3,146	3,845	5,533	6,223	15,164

*Includes 2 deaths in 1909, each aged 1 year
Includes 1 death in 1912, aged 2 years
Includes 1 death in 1913, aged 7 years

} All from Broken Hill, and due to continued drinking of water impregnated with lead.

EXHIBIT No. 12.

[illegible]

EXHIBIT No. 13.

PROPORTIONS of Deaths at Various Ages, and Average Age at Death of Commonwealth Males, Various Occupations, 1909-15.

Age.	Painters.	Plumbers.	Carpenters.	All Occupations.
15-19	2.1	5.5	1.7	2.2
20	3.2	6.6	2.6	4.3
25	4.7	6.8	4.1	4.6
30	6.0	5.5	2.8	4.6
35	5.3	6.9	3.0	5.3
40	8.4	8.9	4.8	6.3
45	10.7	10.8	7.6	7.9
50-54	12.5	10.3	8.5	8.7
55	11.0	10.1	8.8	8.6
60	10.0	8.0	9.6	8.4
65	8.8	5.3	10.3	9.1
70	7.0	6.4	10.5	9.5
75	5.6	3.9	10.4	9.2
80	2.8	2.3	9.1	6.9
85	1.4	2.3	4.6	3.3
90	.5	.4	1.2	.9
95 to 99	.0	.0	.4	.2
100 and over	.0	.0	.0	.0
65 and over	26.1	20.6	46.5	39.1
Total	100.0	100.0	100.0	100.0
Average age of those who died :—				
Aged 15 and over	53.5	49.3	60.9	57.1
Aged 20 and over	54.2	51.2	61.6	57.8

EXHIBIT No. 14.

NUMBER of Persons of Various Ages in the Commonwealth Population of Painters and of Males of all Occupations at Census, 1911.

Age.	Housepainter, Paperhanger, Glazier, Signwriter.	Breadwinners, excluding Independent Means and Dependents, divided by 100.
15-19	1,482	1,978
20	2,293	2,207
25	2,095	1,967
30	1,637	1,689
35	1,503	1,500
40	1,452	1,428
45	1,353	1,311
50	1,050	1,063
55	658	702
60	429	486
65	238	350
70	112	223
75	73	130
80	16	55
85	8	15
90 .....	.....	3
95-99 .....	.....	1
All Ages	14,399	15,108

EXHIBIT No. 15.

CAUSES of Death of Males of all Occupations, Aged 15 years and Upwards, in Commonwealth, 1909-15.

Disease,	1909.	1910.	1911.	1912.	1913.	1914.	1915.	Average 7 Years.	Proportion per 1,000 Deaths.
Typhoid.....	375	366	300	376	361	398	357	362	17.4
Influenza	144	159	182	177	164	120	152	157	7.5
Tuberculosis (all forms)	1,866	1,807	1,854	1,914	1,940	1,936	1,875	1,884	90.4
Anæmia, Chlorosis	109	100	94	124	118	139	121	115	5.5
Alcoholism	118	143	109	149	142	142	193	142	6.8
Lead Poisoning	6	13	5	6	7	5	11	7.6	0.4
Other General Diseases	2,239	2,360	2,503	2,578	2,664	2,594	2,763	2,529	121.3
Total	4,857	4,948	5,047	5,324	5,396	5,334	5,472	5,196.6	249.3
Diseases of the Nervous System.....	1,76.3	1,716	2,002	2,002	2,041	2,096	2,352	1,996	95.7
Organic Diseases of Heart.....	2,203	2,303	2,702	2,958	2,788	2,701	2,466	2,589	124.1
Others of Circulatory System	717	720	785	774	780	871	912	794	38.1
Total	2,920	3,023	3,487	3,732	3,568	3,572	3,378	3,383	162.2
Diseases of Respiratory System	2,032	1,894	2,320	2,453	2,249	2,260	2,587	2,256	108.2
Cirrhosis of Liver	208	232	236	280	251	244	248	243	11.7
Other Diseases of Liver	184	154	123	131	138	156	143	147	7.0
Others of Digestive Organs	937	918	826	940	934	963	1,005	932	44.7
Total	1,329	1,304	1,185	1,351	1,323	1,363	1,396	1,322	63.4
Bright's Disease	1,002	989	1,084	1,260	1,253	1,165	1,301	1,151	55.2
Others of Genito-Urinary System ..	442	484	489	473	496	527	584	499	23.9
Total	1,444	1,473	1,573	1,733	1,749	1,692	1,885	1,650	79.1
Fall	1976 {	319	275	292	280	260	226	267	12.8
Other Violence.....		1,830	2,041	2,301	2,273	2,259	2,151	2,088	100.1
Total	1,976	2,149	2,316	2,593	2,553	2,519	2,377	2,355	112.9
All Other Causes.....	2,388	2,340	2,610	2,807	2,791	2,857	3,177	2,711	130.0
All Causes.....	18,709	18,853	20,540	21,995	21,670	21,593	22,624	20,855	1,000.0

• Excluding Classes VII and VIII (Indefinite and Dependent).

Exhibit No. 15—continued.

CAUSES of Deaths of House Painters and of Painters undefined in New South Wales during 1909-13.

Disease.	Number.	Proportion per 1,000 Deaths.
Typhoid	7	19
Influenza.....	2	5
Tuberculosis (all forms)	48	128
Anæmia, Chlorosis	5	13
Alcoholism.....	1	3
Lead Poisoning.....	6	16
Other General Diseases	25	67
Total.....	94	251
Diseases of the Nervous System.....	45	120
Organic Diseases of the Heart	42	112
Other Diseases of Circulatory System.....	11	30
Total.....	53	142
Diseases of Respiratory System.....	27	72
Cirrhosis of Liver.....	6	16
Other Diseases of Liver	5	13
Other Diseases of Digestive System	12	32
Total.....	23	61
Bright's Disease	57	152
Other Diseases of Genito-Urinary System.....	5	13
Total	62	165
Fall	14	37
Other Violence—Accident	38	102
Total.....	52	139
All Other Causes.....	18	48
All Causes	374	1,000

COMPARISON of Causes of Death of Males of all Occupations and Painters, Aged 15 Years and Upwards

Disease.	Proportion per 1,000 Deaths.	
	Males of all Occupations.	Painters.
Typhoid	17.4	19
Influenza.....	7.5	5
Tuberculosis (all forms)	90.4	128
Anæmia, Chlorosis.....	5.5	13
Alcoholism.....	6.8	3
Lead Poisoning.....	0.4	16
Other General Diseases	121.3	67
Total.....	249.3	251

Exhibit No. 15—*continued.*COMPARISON of Causes of Death, &c.—*continued.*

Disease.	Number.	Proportion. per 1,000 Deaths.
Diseases of Nervous System	95.7	120
Organic Diseases of Heart	124.1	112
Other Diseases of Circulatory System	38.1	30
Total.....	162.2	142
Diseases of Respiratory System	108.2	72
Cirrhosis of Liver.....	11.7	16
Other Diseases of Liver	7.0	13
Other Diseases of Digestive System	44.7	32
Total.....	63.4	61
Bright's Disease	55.2	152
Other Diseases of Genito-Urinary System	23.9	13
Total.....	79.1	165
Fall.....	12.8	37
Other Violence—Accident.....	100.1	102
Total.....	112.9	139
All Other Causes.....	130.0	48
All Causes	1,000.0	1,000

EXHIBIT No. 16.

TABLE showing for Painters the Excess of Percentage of Deaths due to certain Diseases.

Class.	Cause of Death as Proportion of all Deaths.				Lead Poisoning, Bright's Disease and Tuberculosis (all forms).	Excess of Deaths in every 1,000 ascribed to the Influence of Lead.
	All Causes.	Lead Poisoning.	Bright's Disease.	Tuberculosis (all forms).		
All occupations (Commonwealth males, aged 15 years and over).	1,000	0.4	55.2	90.4	146	...
Painters (New South Wales, aged 15 years and over).	1,000	16	152	128	296	150

EXHIBIT No. 17.

COMMONWEALTH NAVAL DOCKYARD, COCKATOO ISLAND.

RECORD of Pro. Painters and Painters and Dockers who have been shown on Sick List from 1st January, 1920, to 30th June, 1921. Also number of days lost shown against each disease.

Disease.	Painters and Dockers.		Pro. Painters.	
	Cases.	Number of Days.	Cases.	Number of Days.
Diseases of Genito-Urinary System	5	225	.....	.....
Catarrh	42	583	21	100
Rheumatism	10	179	5	181
Gastritis	11	95	2	17.
Diseases of Eye	4	96	.....	.....
Malaria	4	100	.....	.....
Bronchitis.....	14	98	2	12
Influenza	21	373	6	205
Diseases of Teeth	1	6	.....	.....
Diseases of Intestines.....	12	134	1	3
Lumbago	1	7	.....	.....
Sore Throat	5	35	.....	.....
Boils	5	17	.....	.....
Diseases of Heart.....	6	47	.....	.....
Diseases of Nervous System.....	4	138	1	21
Tonsilitis	4	23	1	3
Diseases of Veins.....	1	7	.....	.....
Pneumonia	2	69	.....	.....
Hæmorrhoids	2	6	.....	.....
Abscess	2	27	.....	.....
Diseases of Bursæ	1	16	.....	.....
Diseases of Skin	3	25	.....	.....
Pleurisy	1	7	.....	.....
Diseases of Ear	1	32	.....	.....
Ulcer	1	13	.....	.....
Total	163	2,358	39	542

David Smith, 19 Shepherd-street, City. Born 1888.

Commenced	Finished	Ticket No.
20 Oct., 1917	2 Nov., 1917	2,456
15 Jan., 1919	23 Jan., 1919	2,475

David Smith, 19 Shepherd-street, City (later 29 Beaumont-street, Waterloo). Born 1864.

Commenced	Finished	Ticket No.
9 Oct., 1916	11 Oct., 1916	2,460
24 Oct., 1916	26 Oct., 1916	2,460
16 Mar., 1917	19 Mar., 1917	2,356
12 Feb., 1919	15 Feb., 1919	2,396

A. J. Childs, 72 City-road, City. Born 1889. R.S

Commenced	Finished	Ticket No.
28 Mar., 1917	30 Mar., 1917	2,430
23 April, 1917	5 May, 1917	2,452
6 June, 1917	18 June, 1917	2,452
17 Sept., 1917	11 Oct., 1917	2,381
30 Oct., 1917	10 Nov., 1917	2,381

Exhibit No. 17—continued.

PAINTERS AND PAINTERS AND DOCKERS.

RETURN as to employment for three years ending 30th June, 1921.

Number of working days, 898.

Trade.	Daily Average Number on Books.	Daily Average Number Working.	Absentees.	
			All Causes including Sick.	Sick only.
Painters	75.94	68.36	7.58	.93
Painters and Dockers.....	373.12	341.89	31.23	7.19
Joiners	132.77	120.86	11.91	2.45
Shipwrights	100.63	91.30	9.33	2.12
Boilermakers	43.85	40.24	3.61	1.27

EXHIBIT No. 18.

LEWIS BERGER AND SONS (AUST.) LTD.

White-Lead, Paint, and Varnish Works.

Notice to Factory Operatives.

Before commencing work in the morning employees shall change into a suit of overalls provided by the Company.

All employees must arrive at the works in time to commence duties immediately the whistle blows. Men arriving late will, in future, be required to stand aside for 15 minutes before starting.

Clothes.—It is imperative that employees make a complete change of clothing before starting work, and the overalls provided shall not be worn outside the factory grounds.

Men's own effects must be placed in lockers during working hours. The overalls must be hung outside on hooks provided for that purpose.

Respirators must be worn where there is dust, as in Drawing Stacks and in handling Dry Lead.

Baths.—All employees must take a bath before leaving work at night, and the Company will allow time for this.

Meals.—Before entering the lunch room employees must scrub their hands, and particularly the finger nails.

Eating of any kind is forbidden on any part of the factory except the lunch room, and alcoholic liquor is forbidden on the premises.

Smoking is forbidden during working hours.

Medical Inspection.—All employees must be present at the weekly inspection and report immediately to the doctor in the event of any ailment, no matter how slight. There is no charge upon employees for this.

The Company has equipped the works with every facility for ensuring the health of the men, and any failure in the supply of respirators, sponges, nail brushes, soap, towels, &c., must be immediately communicated to the Foreman-in-charge.

Drinking Water.—Use the bubbling fountains provided—all other water is dangerous.

Recommendations.—If the above conditions are carried out, there is no danger whatever.

Teeth and mouth should be cleaned regularly, night and morning.

Keep your bowels regular; in case of difficulty apply to the Works Foreman for corrective, supplied free of charge.

Avoid the use of alcohol.

A good breakfast before commencing work is recommended, and light food such as milk, eggs, onions, is better for those who are in close contact with dry lead.

Above all—Keep clean.

LEWIS BERGER AND SONS (AUST.) LTD.,

H. J. SULLIVAN,

Works' Superintendent.

Rhodes, 27th November, 1917.

EXHIBIT No. 19.

LEWIS BERGER AND SONS (AUSTRALIA) LIMITED—WORKMEN'S COMPENSATION.

Classification of Employees and Rates charged per cent.

	per cent.		
	£	s.	d.
Directors and others over £525 per annum	0	1	1
Salesmen using motor cars	0	13	6
Clerical staff	0	2	6
Kitchen and dining-room staff	0	12	0
Wages men in the works, and foremen	0	12	0
Wages of employees of contractors for cartage and motor transport	2	0	0
Gardeners	0	12	0
Amount paid for Workmen's Compensation during the year 1920-21 (of which the Company paid £14 12s. 7d., and the Insurance Company have paid or been claimed for on the balance)	107	5	0

The number of workers affected is 31, namely :—

In Warehouse	14
Paint department	2
Varnish department	1
White-lead department	9
Mechanical department	5
	31

Rhodes, 19th July, 1921.

(Sgd.) P. JENKINS,
Secretary.

Sundry other rates.

	£	s.	d.
Painters	1	6	6
Lead works	1	2	6
Oil works	0	15	6
Ore reduction	1	16	0
Architects	1	10	0
Builders	1	10	0
Signwriters	1	6	6
Zinc	1	4	0
Plumbers	1	0	0

EXHIBIT No. 20.*Inter Office Letter.*

To General Office.

Dept. Mr. H. B. Sevier (Copy Mr Young).

From Works Office.

Date, 20th July, 1921.

Particulars of accidents to Corroding Shed and Lead Mill Employees for year ended 30th June, 1921 :—

September	Corroding Shed	Robin, J.	Kicked by horse; off 11 days.
December	"	Jones	Slipped on tan bark; bruised arm; 5 days away.
"	"	Evans	Pig-lead dropped on finger; no time lost.
January	"	Gardner	Poisoned hand, knocked same on truck; lost 9 days.
March	"	Keen	Cut over eye, knocked by bucket; lost 3 days.
"	"	Thomas	Stack timber fell on knee; no time lost.
June	Lead Mill	Stoddart	Crushed hand; 3 days off.
"	"	Wirth	Fell off staging; concussion; still away.
"	Corroding Shed	Harrington	Splinter from timber; poisoned hand; 16 days off.

T.B.

(Sgd.) C.M.S.
Acting Works Manager.

EXHIBIT No. 21.

DECLARATION made by.....

Works No.....

1. Surname?
2. Christian names?
3. Address?
4. Age last birthday?
5. Married or single?
6. Dependants, i.e., persons to whose support you in any way contribute?
7. Names and Addresses of previous employers during the past twelve months?
8. Have you been employed in any process or work where lead or its preparations or compounds are used or manufactured? If so, where and when?
- *9. Have you ever suffered from colic or any other form of lead-poisoning?
10. Have you ever suffered from—
Gas?
- Wounds?
- Disablement?
11. Are you an abstainer?
12. Are you a member of any Sick Club or Benefit Society? If so, how many?

* To be filled in by the workman.

I, _____ hereby declare that the answers to the foregoing questions, which have been read to me, are in all respects true.

Witness

Date _____, 19 ____.

(On back of Form.)

General appearance

Alimentary system

Nervous system

Circulating system Arteries..... B.P.....

Urinary system

Urine.....

EXHIBIT No. 22.

ESTIMATED Death Rates of Painters and of Males in All Occupations, based on deaths in 1909-15, assuming Same Age and Occupational Distributions as at Census, 1911.

	Painters.	All Occupations (except Independent and Indefinite).
All ages 15 and over	12.9	12.0
15-19	2.8	2.0
20-24	2.5	3.5
25-29	4.1	4.3
30-34	6.6	5.0
35-39	6.9	6.4
40-44	11.1	8.0
45-49	14.6	11.0
50-54	21.5	14.9
55-59	30.8	22.1
60-64	43.2	31.3
65-69	68.7	48.2
70-74	118	77
75-79	143	129
80-84	352	228
85 and over	430	432

Exhibit No. 22—continued.

If the death rates of painters at the various ages be applied to the population of males in "All Occupations," the resultant death rate is 15·7 per 1,000. This may be taken as the Index of Mortality for the painters, and as comparable with 12·0 for All Occupations.

PAINTERS and All Males compared in Round Figure Life Tables.

	Painters.	All Males.
Number surviving at age—		
20	1,000	1,000
30	965	960
40	905	905
50	795	815
60	610	680
70	350	460
80	90	170
90	10	20
100 .....	.....	.....
Expectation of life at age 20	About 42 years	About 45 years.

EXHIBIT No. 23.

INDEXES of Mortality from Various Causes of Males aged 15 and over.

	Painters.	All Occupations (except Independent and Indefinite).
	Per 1,000.	Per 1,000.
Typhoid	·30	0·21
Influenza	·08	·09
Tuberculosis (all forms).....	2·01	1·08
Anæmia, Chlorosis	·20	·07
Alcoholism	·05	·08
Lead-poisoning.....	·25	·00
Other General Diseases	1·05	1·46
Total	3·94	2·99
Diseases of Nervous System	1·88	1·15
Organic Diseases of Heart	1·76	1·49
Other Diseases of Circulatory System	·47	·46
Total	2·23	1·95
Diseases of Respiratory System	1·13	1·29
Cirrhosis of Liver	·25	·14
Other Diseases of Liver.....	·20	·08
Other Diseases of Digestive System	·51	·54
Total	·96	·76
Bright's Disease	2·38	·66
Other Diseases of Genito-Urinary System	·21	·29
Total	2·59	·95
Fall	·58	·15
Other Violence—Accident	1·60	1·20
Total	2·18	1·35
All Other Causes	·75	1·56
All Causes	15·7	12·0

EXHIBIT No. 24.

PAINTERS—ASSISTANTS AND APPRENTICES.

Average number of men employed from 1st July, 1918, to 30th June, 1921.

Painters.	Paint Mixer.	Painters' Assistants.	Apprentice Painters.	Total.
149	1	61	7	218

	Days.
Total time off duty through sickness from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	5,092
Total time off duty through injury not considered sustained whilst on duty from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	423
Total time through sickness and injury not considered sustained whilst on duty from 1st July, 1918, to 30th June, 1921 (excluding Sundays).....	5,515
Average time lost through sickness per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	23·358
Average time lost through injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	1·940
Average time lost through sickness and injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	25·298

CAR BUILDERS AND ASSISTANTS—ALSO APPRENTICES.

Average number of men employed from 1st July, 1918, to 30th June, 1921.

Car Builders.	Car Builders' Assistants.	Apprentices Car Builders.	Total.
213	23	68	304

	Days.
Total time off duty (excluding Sundays) through sickness.....	4,909
Total time off duty (excluding Sundays) through injury not considered sustained whilst on duty	247
Total time off duty (excluding Sundays) through sickness and injury not considered sustained whilst on duty	5,156
Average time lost through sickness per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	16·148
Average time lost through injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	·812
Average time lost through sickness and injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	16·960

TOTAL STAFF.

	Days.
Average number of men employed from 1st July, 1918, to 30th June, 1921—1,208 men.	
Total time off duty through sickness from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	24,954
Total time off duty through injury not considered sustained whilst on duty from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	1,441
Total time off duty through sickness and injury not considered sustained whilst on duty from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	26,395
Average time lost through sickness per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	20·657
Average time lost through injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	1·193
Average time lost through sickness and injury not considered sustained whilst on duty per man from 1st July, 1918, to 30th June, 1921 (excluding Sundays)	21·850

Exhibit No. 24—continued.

TOTAL STAFF.

Average days worked per man per period of twelve (12) days taken from seven (7) equidistant fortnightly periods during the past three (3) years from 1st July, 1918, to 30 June, 1921.

Period ended.	Total men employed.	Days worked.	Average per man per period.
25 June, 1921.....	1,325	15,187	11·462
22 Jan., 1921.....	1,303	14,756	11·324
21 Aug., 1920.....	1,293	14,603	11·294
20 Mar., 1920.....	1,287	14,730	11·445
18 Oct., 1919.....	1,252	14,102	11·263
17 May, 1919.....	1,159	12,798	11·042
14 Dec., 1918.....	1,024	11,635	11·362
Average for seven (7) periods ...			11·317

CAR BUILDERS, CAR BUILDERS' ASSISTANTS AND APPRENTICES.

25 June, 1921.....	333	3,853	11·570
22 Jan., 1921.....	336	3,834	11·411
21 Aug., 1920.....	336	3,830	11·399
20 Mar., 1920.....	332	3,858	11·620
18 Oct., 1919.....	303	3,403	11·231
17 May, 1919.....	272	3,011	11·069
14 Dec., 1918.....	256	2,931	11·449
Average for seven (7) periods ...			11·402

PAINTERS, PAINTERS' LABOURERS AND APPRENTICES.

25 June, 1921.....	259	2,907	11·216
22 Jan., 1921.....	244	2,693	11·037
21 Aug., 1920.....	249	2,817	11·313
20 Mar., 1920.....	240	2,731	11·379
18 Oct., 1919.....	240	2,708	11·283
17 May, 1919.....	218	2,375	10·894
14 Dec., 1918.....	151	1,685	11·159
Average for seven (7) periods ...			11·190

TABLE A—CAR BUILDERS, &C.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Hyde, D.....	Apprentice car builder	Influenza, chill	21-6-20	30-6-20	8
Eaton, S.	Car builder	Bronchial cold	24-6-20	30-6-20	6
Marshall, J.	"	Influenza.....	22-6-20	28-6-20	5
Todd, E.	"	"	22-6-20	28-6-20	5
Watson, A.	"	"	21-6-20	25-6-20	4
Chick, E.	"	Conjunctivitis	22-6-20	30-6-20	8
Emery, J.	Apprentice car builder	Pneumonia.....	18-5-20	30-6-20	11
Chick, E.	Car builder	Conjunctivitis	18-6-20	21-6-20	2
Tillman, S.	"	Rheumatic authritis	14-6-20	18-6-20	4
Turnball, W.	Apprentice car builder	Bronchial catarrh.....	31-5-20	18-6-20	16
O'Connor, W.	"	Influenza, chill	7-6-20	21-6-20	12
Clarkson, A.	"	Influenza	7-6-20	18-6-20	10
Austin, L.	"	Neurasthenia	8-6-20	30-6-20	20
Fisher, E.....	Car builder's assistant...	Bronchitis	2-6-20	7-6-20	4
Stafford	Car builder	"	28-5-20	7-6-20	8
Brocock, R.	"	"	24-5-20	31-5-20	6

Exhibit No. 24—continued.

TABLE A.—Car Builders, &c.—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Birse, G.	Apprentice car builder	Influenza	20-5-20	27-5-20	6
Ryan, J.	" "	Bronchitis	18-5-20	25-5-20	6
Birse, J.	" "	Influenza	13-5-20	24-5-20	9
Harris, V.	Car builder's assistant..	Gastritis	5-5-20	17-5-20	10
Sheerin, J.	Car builder	Influenza	6-5-20	17-5-20	9
Thompson, W.	"	Severe cold	3-5-20	10-5-20	6
Keegan, J.	"	"	3-5-20	10-5-20	6
Osborne, J.	Car builder	Carcuions of stomach.....	23-4-20	28-5-20	31*
Nieholls, R.	"	Influenza	27-4-20	3-5-20	5
Mighell, R.	"	Neurasthenia	28-4-20	1-6-20	29
Douttly, R.	"	"	27-4-20	17-5-20	17†
Fleming, J.	"	Bronchial catarrh	15-3-20	22-3-20	6
Lewins, S.	"	Deflected Septum.....	8-3-20	18-3-20	9
McMahon, J.	"	Bad feet	28-2-20	10-3-20	9
Hardman, W.	Car builder	"	12-2-20	23-2-20	9
Watkins, H.	Apprentice car builder	Hæmorrhoids.....	10-2-20	1-3-20	17
Elliston, F.	" "	Asthma	23-1-20	3-2-20	9
Stafford, T.	Car builder.....	Bronchitis	22-1-20	2-2-20	9
Wilkin, H.	"	Acute Dyspepsia	17-1-20	27-1-20	8
Platt, D.	"	Influenza	12-1-20	19-1-20	6
Bingham, W.	"	Gastritis.....	19-1-20	27-1-20	7
Hayston, E.	Car builder's assistant..	"	27-1-20	10-3-20	37
Raper, J.	Car builder	Muscular rheumatism.....	22-1-20	28-1-20	5
Martin, G.	"	Poisoned finger	9-1-20	15-1-20	5
Hennesy, R.	Car builder's assistant..	Gastritis.....	7-1-20	20-4-20	90‡
Wearing, R.	Apprentice car builder	Enteric	5-1-20	12-1-20	6
Miles, H.	Car builder's assistant..	Diarrhœa	19-12-19	5-2-20	42*
Dunn, L.	Car builder	Dysentery	15-12-19	20-12-19	5
Rider, S.	Apprentice car builder	Operation	26-11-19	5-1-20	34
Morrison, G.	Car builder's assistant..	Dysentery	18-11-19	25-11-19	6
Sheerin, J.	Car builder	Gastritis.....	18-11-19	24-11-19	5
North, A.	"	"	25-10-19	3-11-19	7
Robertson, W.	"	"	30-9-19	20-10-19	17
Sullivan, A.	"	Nervous strain.....	11-10-19	16-10-19	4
Parkinson, J.	"	Nervous debility	10-10-19	3-11-19	21†
Todd, E.	"	Lumbago	9-10-19	11-10-19	2
Osborne, J.	"	Swelling of legs.....	23-9-19	7-10-19	12
Osborne, W.	"	Bronchial catarrh.....	15-9-19	30-9-19	13
Jarvis, P.	"	Lumbago and Gastric catarrh.	15-9-19	22-9-19	6
Giltrow, T.	"	Influenza	17-9-19	25-9-19	7
Jones, R.	"	Bronchitis	9-9-19	16-9-19	6
Hennessey, R.	Car builder's assistant..	Diarrhœa.....	11-9-19	4-11-19	46
Elliston, I.	Apprentice car builder	Boils.....	10-9-19	16-9-19	5
Stevens, J.	Car builder	"	4-9-19	15-9-19	9
Cook, W.	Car builder	Ulcer of leg	6-9-19	15-9-19	7
Lambert, W.	Apprentice car builder	Influenza	8-9-19	30-9-19	19
Shillecock, L.	Car builder	Nephritis	5-9-19	2-10-19	23
Ross, Jos.	Car builder's assistant..	Bronchitis	28-8-19	4-9-19	6
Mighell, R.	Car builder	Insomnia	21-3-19	25-8-19	3
Thompson, R.	Apprentice car builder	G.S.W. abdomen	1-8-19	4-12-19	107
Evans, P.	Car builder	Influenza	5-8-19	13-8-19	7
Thomas, T.	"	Severe cold	5-8-19	11-8-19	5
Peake, C.	"	Lumbago and rheumatism	28-7-19	1-8-19	4
Stafford, T.	"	Bronchitis	26-7-19	7-8-19	10
Wilkins, H.	"	"	23-7-19	30-7-19	6
Evans, W.	"	Bronchitis	14-7-19	21-7-19	6
Mighell, W.	"	Nervous prostration	14-7-19	29-7-19	13

* Deceased.

† Resigned.

‡ Retired.

Exhibit No. 24—*continued.*TABLE A.—Car Builders, &c.—*continued.*

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Lachlan, J.	Car builder	Acute Synovitis	8-7-19	21-7-19	11
Watkins, H.	Apprentice car builder	Catarrh	7-7-19	14-7-19	6
Webb, F.	Car builder	Influenza	3-7-19	14-7-19	9
Swift, W.	"	"	3-7-19	10-7-19	6
Mills, W.	"	"	10-6-19	5-8-19	48
Cooper, F.	"	"	18-6-19	7-7-19	16
Walsh, W.	"	"	1-7-19	14-7-19	11
Hanks, S.	"	"	28-6-19	14-7-19	13
Messer, W.	"	"	2-7-19	14-7-19	10
Gurthrie, T.	"	"	20-6-19	28-6-19	7
Webb, W.	"	"	21-6-19	9-7-19	15
Kelty, H.	"	"	24-6-19	7-7-19	11
Turnell, W.	"	"	1-7-19	12-7-19	10
Gard, W.	"	"	21-6-19	28-6-19	6
Hoffman, H.	"	"	25-6-19	30-6-19	4
Wilson, H.	"	"	24-6-19	28-6-19	4
Beard, E.	Apprentice car builder	"	24-6-19	7-7-19	11
Ryan, J.	"	"	21-6-19	14-7-19	19
Mitchell, D.	Car builder	Bronchitis	27-6-19	21-7-19	20
Worthington, H.	"	Influenza	24-6-19	7-7-19	11
Evans, P.	"	"	24-6-19	30-6-19	5
Crouch	Apprentice car builder	"	20-6-19	28-6-19	7
Alexander, H.	Car builder	"	17-6-19	7-7-19	17
Bragg, A.	Apprentice car builder	"	19-6-19	25-6-19	5
Irvin, D.	Car builder	"	21-6-19	30-6-19	7
Dunbar, L.	"	"	20-6-19	30-6-19	8
Cox, G.	Apprentice car builder	"	18-6-19	30-6-19	10
Powis, L.	Car builder	"	25-6-19	8-7-19	11
Garnett, G.	"	"	19-6-19	8-7-19	16
Kirk, H.	"	"	24-6-19	1-7-19	6
Harvey, W.	"	"	24-6-19	30-6-19	5
Pattison, G.	"	"	7-6-19	25-6-19	15
Munns, A.	Apprentice car builder	"	14-6-19	25-6-19	9
Bubb, Wm.	Car builder	Contact	24-6-19	30-6-19	5
Atkinson, A.	"	Influenza	11-6-19	21-6-19	9
Meale, T.	"	"	21-6-19	1-7-19	8
Radford, L.	"	"	13-6-19	30-6-19	14
Churches, A.	Apprentice car builder	"	17-6-19	24-6-19	6
Funnell, F.	"	"	20-6-19	24-6-19	3
Elliston, F.	"	"	7-6-19	24-6-19	14
Allison, J.	"	"	20-6-19	24-6-19	3
Squires, S.	Car builder	"	18-6-19	30-6-19	10
Robb, W.	"	"	16-6-19	26-6-19	9
Parkinson, J.	"	"	13-6-19	24-6-19	9
Monk, C.	"	"	14-6-19	30-6-19	13
Carpenter, G.	"	"	11-6-19	30-6-19	16
Jamieson, R.	"	"	17-6-19	27-6-19	9
Jones, W.	Apprentice car builder	"	14-6-19	21-6-19	6
Hartley, F.	Car builder	"	10-6-19	16-6-19	5
Munns, A.	Apprentice car builder	"	14-6-19	25-6-19	9
Osborne, W.	Car builder	Bronchial catarrh	16-6-19	24-6-19	7
Sutherland, O.	"	Influenza	14-6-19	30-6-19	13
Edgar, J.	"	"	13-6-19	24-6-19	9
Galogly, J.	Apprentice car builder	"	11-6-19	18-6-19	6
Grenfell, J.	Car builder	Influenza	16-6-19	24-6-19	7
Daniels, T.	"	"	13-6-19	24-6-19	9
Watson, A.	"	"	12-6-19	26-6-19	12
Tonkin, E.	"	"	12-6-19	24-6-19	10
Furgie, W.	"	Bronchitis	11-6-19	24-6-19	11

Exhibit No. 24—continued.

TABLE A.—Car Builders, &c.—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Ambler, J.	Apprentice car builder	Influenza.....	12-6-19	30-6-19	15
Stevens, J.	Car builder .....	.....	5-6-19	16-6-19	9
Birse, G.	Apprentice car builder	„	5-6-19	16-6-19	9
Lightfoot, R.	Car builder	„	10-6-19	16-6-19	5
Duncan, A.	„	„	11-6-19	16-6-19	4
Normoile, W.	Apprentice car builder	„	7-6-19	30-6-19	19
Clarkson, A.	„	„	11-6-19	21-6-19	9
Annis, W.	Car builder	„	10-6-19	16-6-19	5
Hay, E.	„	„	10-6-19	24-6-19	12
Mangnall, J.	„	Gastro-cataarrh	2-6-19	7-6-19	5
Fratus, T.	„	Influenza.....	28-4-19	16-6-19	42
Crimmond, G.	Apprentice car builder	„	2-6-19	16-6-19	12
Wall, C.	„	Pneumonic-influenza	3-5-19	12-7-19	60
Moore, E.	Car builder	Influenza.....	19-5-19	2-6-19	12
Fergie, W.	„	Tonsilitis.....	12-5-19	21-5-19	8
Mangnall, J.	„	Influenza.....	12-5-19	21-5-19	8
Doods, P.	Apprentice car builder	„	22-4-19	12-5-19	17
Chick, E.	Car builder	Neuralgia	2-5-19	8-5-19	5
Matheson, S.	„	Influenza.....	22-4-19	5-5-19	11
Magnall, J.	„	Rheumatism	22-4-19	5-5-19	11
Leggitt, A.	„	Influenza.....	28-4-19	13-5-19	13
Hyde D.	Apprentice car builder	Gastritis	15-4-19	28-4-19	11
Miles, H.	Car builder's assistant...	Influenza.....	24-4-19	5-5-19	9
Green, W.	Apprentice car builder	.....	23-4-19	30-4-19	6
Todd, E.	Car builder	Influenza.....	14-4-19	30-4-19	14
Lyons, F.	„	„	16-4-19	22-4-19	5
Carter, C.	„	„	16-4-19	25-4-19	8
Turnbull, A.	Apprentice car builder	„	11-4-19	24-4-19	11
Mitchell, E.	Car builder	Debility	22-4-19	5-5-19	11
Atkinson, W.	Apprentice car builder	.....	11-4-19	23-4-19	10
Evans, P.	Car builder	Rheumatism	11-4-19	22-4-19	9
Bishop, H.	„	Influenza.....	9-4-19	24-4-19	13
Jones, R.	„	Bronchitis	26-3-19	13-5-19	41
Tomms, Ed.	Apprentice car builder	Influenza.....	11-4-19	22-4-19	9
Russell, A.	„	„	11-4-19	22-4-19	9
Vaughan, S.	„	„	31-3-19	22-4-19	19
Nicholls, R.	„	Bronchitis, influenza.....	9-4-19	2-6-19	46
Ball, E.	„	Gastritis	9-4-19	15-4-19	5
Drover, A.	Car builder	Influenza	1-4-19	7-4-19	5
Kitching, F.	Apprentice car builder	„	1-4-19	14-4-19	11
Donoghue, P.	Car builder	„	27-3-19	14-4-19	15
Westbrook, G.	„	„	11-4-19	22-4-19	9
Taylor, G.	„	„	11-4-19	28-4-19	14
Mitchell, D.	„	„	5-4-19	15-4-19	8
Seabrook, W.	„	Neurasthenia	24-3-19	24-6-19	79
Watts, R.	„	„	1-4-19	7-4-19	5
Clark, W.	„	Influenza.....	4-4-19	14-4-19	8
McGoran, L.	Apprentice car builder	.....	2-4-19	8-4-19	5
Rogers, M.	Car builder	Influenza.....	31-3-19	8-4-19	7
Trass, A.	„	„	27-3-19	7-4-19	9
Evans, P.	„	Lumbago	1-4-19	7-4-19	5
Green, W.	Apprentice car builder	Influenza.....	31-3-19	22-4-19	19
Duff, C.	Car builder	„	3-4-19	12-5-19	33
Eaton, S.	„	„	3-4-19	10-4-19	6
Beckman, C.	„	„	4-4-19	12-5-19	32
Holder, S.	„	„	1-4-19	4-4-19	3
Barratt, W. ....	.....	.....	31-3-19	14-4-19	12
Melville, W. ....	.....	.....	24-3-19	3-4-19	9

Exhibit No. 24—continued.

TABLE A.—Car Builders, &c.—continued.

Name.	Occupation.	Nature of illness.	Illness.		
			Off.	Resumed.	Days.
Osborne, J. ....	.....	Rapid heart and prostration.	29-3-19	8-4-19	8
McCarthy, L.	Car builder	Influenza.....	25-3-19	2-4-19	7
Shillock, L.	"	"	29-3-19	7-4-19	7
Pendergast, N.	"	Influenza	31-3-19	30-4-19	26
McLeod, J.	Apprentice car builder	Pneumonia.....	27-3-19	7-7-19	87
Moore, S.	"	Influenza	25-3-19	9-4-19	13
Wilson, T.	"	Coryza.....	27-3-19	7-4-19	9
Johnson, W.	Car builder	Influenza	28-3-19	14-4-19	14
Eggleton, A.	"	"	24-3-19	7-4-19	12
Thurston, T.	Apprentice car builder	"	21-3-19	12-5-19	44
Antonio, C.	Car builder	"	22-3-19	7-4-19	13
Gilchrist, W.	Apprentice car builder	Bronchitis	17-3-19	22-4-19	31
Goddard, A.	Car builder's assistant..	Ingrowing toe-nail	28-2-19	18-3-19	18
Nicholls, R.	Car builder	Bronchitis	7-3-19	20-3-19	11
Beckman, C.	"	Catarrh	27-2-19	6-3-19	6
Ross, J.	Car builder's assistant..	Bronchitis	21-2-19	11-3-19	15
Carroll, W.	"	Rheumatism	24-2-19	3-3-19	6
Norton, J.	Apprentice car builder	"	17-2-19	24-2-19	6
Mayhew, G.	Car builder	Septic wound.....	11-2-19	18-2-19	6
Lorger, A.	Apprentice car builder	"	28-1-19	3-2-19	5
Root, R.	"	Furmicillooses	10-1-19	31-1-19	18
Hennessy, R.	Car builder's assistant..	Bursitis	24-1-19	20-2-19	23
Watkins, H.	Apprentice car builder	Gastro-enteritis	15-1-19	20-1-19	4
Annis, W.	Car builder	Strained thigh	6-1-19	13-1-19	6
Daniels, B.	"	Gastro-enteritis	18-12-18	6-1-19	16
Shaw, G.	"	Sciatica	11-12-18	16-12-18	4
Hyde, J.	Apprentice car builder	Tonsilitis.....	27-11-18	2-12-18	4
Tomms, E.	"	Gastric influenza	2-12-18	9-12-18	6
Magnall, J.	Car builder	Gastro-enteritis	26-11-18	2-12-18	5
Fitzpatrick, W.	"	Pneumonia.....	20-11-18	6-1-19	40
Lorger, A.	Apprentice car builder	Influenza	16-11-18	25-11-18	7
Wilkinson, H.	Car builder	Bronchial catarrh	18-11-18	27-11-18	8
Stevens, J.	"	Shell-shock.....	4-11-18	26-11-18	19
Cole, J.	"	T.B.	16-11-18	30-11-18	12
Masters, C.	"	Nervous breakdown	19-9-18	6-1-19	93
Maher, F.	Car builder's assistant..	"	9-11-18	25-11-18	13
Antonio, C.	Car builder	"	5-11-18	11-11-18	5
Wilkins, H.	"	Influenza	28-10-18	8-11-18	10
Lorger, A.	Apprentice car builder	"	30-10-18	4-11-18	4
Clemesha, B.	Car builder	Jarred foot.....	28-10-18	5-11-18	7
O'Brien, L.	"	Gastritis.....	28-10-18	18-11-18	18
Drover, A.	"	Catarrh	24-10-18	4-11-18	9
Sheerin, J.	"	Gastritis.....	15-10-18	22-10-18	6
Heywood, R.	"	Influenza	8-10-18	18-10-18	9
Austin, L.	Apprentice car builder	"	30-9-18	5-10-18	5
Haylor, A.	Car builder	"	21-9-18	4-10-18	11
McFlynn, M.	"	"	19-9-18	26-9-18	6
Preen, F.	Apprentice car builder	"	19-9-18	24-9-18	4
Platt, D.	Car builder	"	16-9-18	20-9-18	4
Bustin, A.	"	"	12-9-18	23-9-18	9
Dunne, L.	"	"	10-9-18	23-9-18	11
Barrett, H.	"	"	10-9-18	23-9-18	11
Carroll, W.	Car builder's assistant..	"	3-9-18	16-9-18	11
Clay, C.	Car builder	"	7-9-18	19-9-18	10
Roper, J.	"	"	6-9-18	17-9-18	9
Shaw, G.	"	"	5-9-18	11-9-18	5
Phillips, A.	Apprentice car builder	"	9-9-18	18-9-18	8

Exhibit No. 24—continued.

TABLE A.—Car Builders, &c.—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Williams, W.	Car builder	Influenza	4-9-18	9-9-18	4
Jones, W.	Apprentice car builder	"	5-9-18	12-9-18	6
Cook, W.	Car builder	Influenza pleurisy	3-9-18	24-9-18	18
Eaton, S.	"	Influenza	31-8-18	6-9-18	5
Daniels, B.	"	"	3-9-18	9-9-18	5
Masters, C.	"	Epistaxia	3-9-18	17-9-18	12
Green, T.	"	Bronchitis	2-9-18	19-11-18	67 [‡]
Green, S.	"	Influenza	30-8-18	9-9-18	8
Stafford, T.	"	Ulcer on leg	27-8-18	21-10-18	47
Lambert, W.	Apprentice car builder	"	6-8-18	19-8-18	11
Wearing, R.	"	Tonsilitis	15-8-18	26-8-18	9
Gard, W.	"	Appendicitis	9-8-18	21-1-19	148
Burns, J.	Car builder's assistant	Quinsey	13-8-18	20-8-18	6
Buchanan, G.	Car builder	Shingles	7-8-18	23-9-18	40
Bryers, H.	Car builder's assistant	Operation on nose	26-7-18	19-8-18	20
Fitzpatrick	Car builder	Gout	16-7-18	29-7-18	11
Opie, E.	Car builder's assistant	Catarrh and rheumatism	4-7-18	9-7-18	4
Le Breton, E.	Apprentice car builder	Influenza	1-7-18	5-7-18	4
Squires, S.	Car builder	Tonsilitis	1-7-18	5-7-18	4
Hennessy, R.	Car builder's assistant	Gastro-enteritis	1-7-18	24-7-18	20
Fleming, J.	Car builder	Hydroecles .....	.....	1-7-18	1
Haylor, A.	"	Hepatic tremour	1-7-18	29-7-18	24
Funnell, F.	"	Tonsilitis	18-7-18	25-7-18	6

Injuries not considered sustained on duty.

Main, A.	Apprentice car builder	Fractured finger	18-6-20	30-6-20	11
Wilkins, H.	Car builder	Injury to shoulder	4-6-20	23-6-20	16
Turnbull, W.	Apprentice car builder	Injury to head	15-4-20	22-4-20	6
Leonard, W.	"	Multiple fracture	17-9-19	16-10-19	25
Drover, A.	Car builder	Burns on right hand	15-9-19	19-9-19	4
Ambler, J.	Apprentice car builder	Hernia	14-1-19	1-3-19	40
Vaughan, S.	"	Injuries to right ankle	16-2-20	23-2-20	6

‡ Retired.

TABLE B.

Painters, Painters' Assistants, and Apprentices.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Hedger, W.	Painter's labourer	T.B.	20-4-20	30-6-20	62
Webster, C.	Painter	Influenza	28-6-20	30-6-20	3
Drenman, L.	"	Furuncular, inflammation, right forearm	28-6-20	30-6-20	3
Ephgrave, W.	"	Tonsilitis	28-6-20	30-6-20	3
Richards, F.	"	Influenza	23-6-20	29-6-20	5
Dewhurst, R.	"	"	24-6-20	30-6-20	6
Anderson, B.	Painter's labourer	"	18-6-20	28-6-20	8
Smith, W.	Painter	Poisoned hand	22-6-20	30-6-20	8
Gillard, H.	"	Influenza	22-6-20	28-6-20	5
Levey, W.	"	"	14-6-20	28-6-20	12
Smith, A.	Painter's labourer	"	7-6-20	18-6-20	10
Parry, P.	Painter	Appendicitis	9-6-20	21-6-20	10
Parry, P.	"	Influenza	1-6-20	7-6-20	5
Hegarty, J.	"	"	28-5-20	2-6-20	4
Bailey, Ed.	"	"	3-6-20	30-6-20	24
Chant, Arthur	Painter's labourer	"	31-5-20	7-6-20	6

Exhibit No. 24—continued.

TABLE B.—Painters, Painters' Assistants, and Apprentices—continued.

Name.	Occupation.	Nature of illness.	Illness.		
			Off.	Resumed.	Days.
Wheatley, J.	Painter.....	Poisoned hand	29-5-20	7-6-20	7
Tuite, B.	Painter's labourer	Fever, cold.....	25-5-20	31-5-20	5
O'Connell, C.	Painter.....	Pneumonia.....	24-5-20	30-6-20	33
Jukes, W.	Painter's labourer	Influenza	17-5-20	21-5-20	4
White, Arthur	Painter.....	Colic	14-5-20	20-5-20	5
Towns, H.	Painter's labourer	Rheumatic gout	3-5-20	10-5-20	6
Whiteman, L.	"	Acute bronchitis	28-4-20	3-5-20	4
Walker, A.	Paint mixer	Rheumatic gout	24-4-20	3-5-20	7
Gorman, E.	Painter	"	19-4-20	23-4-20	8
Mealy, P.	"	Influenza	19-4-20	27-4-20	7
Claypole, W.	Painter's labourer	"	21-4-20	3-5-20	10
Leach, C.	Painter	Neurasthenia	8-4-20	12-4-20	3
Anderson, C.	"	Dysentery	8-4-20	12-4-20	3
Forbes, W.	Painter's labourer	"	8-4-20	3-5-20	21
Bland, Chas.	"	Enlargement of prostate	15-3-20	15-4-20	27*
Newham, C.	"	"	8-4-20	12-4-20	3
Carpenter, D.	Painter	Gastritis.....	25-3-20	30-3-20	4
Shoults, R.	"	Pleurisy	15-3-20	8-4-20	21
Ward, L.	"	Gastritis.....	7-2-20	2-6-20	99
Shiell, G.	Painter's labourer	Abdominal colic	10-3-20	13-3-20	3
Anderson, B.	"	Conjunctivitis	12-2-20	17-2-20	4
Whiteman, L.	"	"	9-2-20	11-2-20	2
Latham, G.	Painter	Severe cold	29-1-20	22-3-20	45
Kemsley, W.	"	"	12-1-20	27-1-20	13
Tuite, B.	Painter's labourer	Diarrhœa.....	15-1-20	27-1-20	10
Clark, A.	Painter	Septic sores on face	19-1-20	27-1-20	7
Towns, H.	Painter's labourer	Influenza	16-1-20	9-2-20	20
Green, R.	Painter	Bronchial catarrh and asthma.....	5-1-20	28-1-20	20
Newman, W.	"	Gastritis.....	19-12-19	23-12-19	3
Shiell, G.	Painter's labourer	Hæmorrhoid	13-12-19	23-12-19	8
Blake, H.	"	Carbuncle on neck	18-12-19	12-1-20	21
Morrell, W.	Painter	"	9-12-19	15-12-19	5
Ward, L.	"	Influenza	4-12-19	15-12-19	9
Packer, E.	"	"	8-12-19	15-12-19	6
Tuite, B.	Painter's labourer	"	29-11-19	10-12-19	9
Kirton, W.	Painter	Enterocolitis.....	27-11-19	8-12-19	9
Jennings, T.	Apprentice painter.....	"	29-11-19	1-12-19	1
McInrath, V.	Painter	Influenza	24-11-19	1-12-19	6
Shiell, G.	Painter's labourer	"	20-11-19	24-11-19	3
Ayre, J.	Painter	Lead poisoning	14-11-19	2-12-19	15
McIntyre, J.	"	Result of old injury to back	*5-11-19	10-11-19	4
Thronsen, E.	"	Debility	28-10-19	10-11-19	11
Leslie, C.	"	Catarrh	1-11-19	12-11-19	9
Heggarty, J.	"	Laryngitis	23-10-19	28-10-19	4
Madigan, W.	"	Colitis.....	28-10-19	3-11-19	7
Wilkins, H.	"	Plumbism	18-10-19	10-5-20	175
Henry, J.	Painter's assistant	Gonorrhœa.....	9-7-19	23-10-19	91
Ward, L.	Painter	Gastritis.....	14-10-19	22-10-19	7
Steward, R.	"	Renal colic	4-10-19	30-10-19	22
Cawley, L.	Painter's labourer	Colitis	23-9-19	7-10-19	12
Keevers, H.	Painter	Effects of lead	18-9-19	2-10-19	13†
Love, W.	"	Tonsillitis.....	22-9-19	29-9-19	6
Cooke, S.	"	"	16-9-19	29-9-19	11
McKing, T.	"	Influenza	15-9-19	29-9-19	12
Joller, W.	Painter's assistant	"	1-9-19	15-9-19	12
McClymont, J.	Painter	Acute dyspepsia	29-8-19	9-9-19	9
Fennan, F.	"	Laryngitis	3-9-19	8-9-19	4

* Deceased.

† Resigned.

Exhibit No. 24—continued.

TABLE B.—Painters, Painters' Assistants, and Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Tuite, B.	Painter's Labourer	Influenza	21-7-19	4-9-19	39
Simpson, H.	"	Rheumatism	21-8-19	25-8-19	3
Cawley, L.	"	Pneumonic influenza	26-7-19	8-9-19	37
Hart, T.	Painter	Phlegmen	28-7-19	5-8-19	7
Ward, L.	"	Bronchitis	24-7-19	5-8-19	10
Wheatley, G.	"	Tonsilitis	26-7-19	1-8-19	5
Burke, T.	"	Neuralgia	23-7-19	30-7-19	6
Melville	"	Influenza	17-7-19	5-8-19	16
Smith, P.	"	Anæmic	24-6-19	9-7-19	13
Broadbridge	Painter's labourer	"	7-7-19	14-7-19	6
Baldrook, W.	Painter	Influenza	26-6-19	14-7-19	15
Tout, W.	"	"	8-7-19	22-7-19	12
Johns, J.	Painter's labourer	"	30-6-19	8-7-19	7
Cawley, L.	"	"	28-6-19	9-7-19	9
O'Connell, C.	Painter	"	30-6-19	7-7-19	6
Triggs, S.	"	"	24-6-19	4-7-19	9
Atkinson, H.	"	"	30-6-19	7-7-19	6
Bell, G.	Painter's labourer	"	24-6-19	7-7-19	11
Stokes, C.	Painter	"	25-6-19	2-7-19	6
Murphy, P.	"	Pneumonic influenza	21-6-19	15-7-19	20
Leeder, T.	"	Influenza	17-6-19	28-12-19	167*
Dersch, P.	"	"	17-6-19	30-6-19	11
Carpenter, D.	"	Bronchitis	27-6-19	1-7-19	3
Anderson, C.	Painter's labourer	Pneumonic influenza	13-6-19	30-6-19	14
Clingham, A.	Painter	Influenza	26-6-19	8-7-19	10
Treble, T.	Painter's labourer	"	12-6-19	21-6-19	8
Hyslop, H.	Painter	"	24-6-19	30-6-19	5
Kirton, W.	"	"	14-6-19	14-7-19	25
Bourne, F.	"	"	24-6-19	5-7-19	10
Boddan, H.	"	"	19-6-19	24-6-19	4
Bower, J.	Painter's labourer	"	13-6-19	27-6-19	12
Kennedy, W.	"	"	12-6-19	24-6-19	10
Reavell, J.	Painter	"	19-6-19	7-7-19	15
Keene, J.	"	"	18-6-19	24-6-19	5
Whitman, L.	Painter's labourer	"	11-6-19	20-6-19	9
Moloney	Painter	"	5-6-19	21-6-19	14
Roy, R.	Painter's labourer	"	3-6-19	24-6-19	18
Cooper, W.	Painter	"	14-6-19	30-6-19	13
Cottle, A.	"	"	17-6-19	7-7-19	17
Meinrath, V.	"	"	14-6-19	20-6-19	5
Towns, H.	Painter's labourer	Gout	18-6-19	24-6-19	5
Flood, A.	Painter	Influenza	16-6-19	30-6-19	12
Clark, T.	Painter's labourer	"	16-6-19	24-6-19	7
Jarvis, P.	"	"	16-6-19	24-6-19	7
Guilford	"	"	16-6-19	24-6-19	7
Crawley	"	"	13-6-19	30-6-19	14
Jennings, A.	Apprentice painter	"	13-6-19	24-6-19	9
Whymark, A.	Painter	"	14-6-19	24-6-19	8
Stewart, J.	"	"	13-6-19	24-6-19	9
Bissell, C.	"	"	16-6-19	30-6-19	12
Crochford, L.	Apprentice painter	"	16-6-19	9-8-19	47†
Padfield, H.	Painter	"	13-6-19	18-6-19	4
Cameron, H.	"	"	16-6-19	24-6-19	7
Murray, G.	Painter's assistant	"	13-6-19	7-7-19	20
Field, T.	Painter	"	13-6-19	7-7-19	20
King, Jas.	"	"	12-6-19	1-7-19	16
Wiseman, J.	Painter's assistant	"	10-6-19	26-6-19	14

* Retired.

† Resigned.

Exhibit No. 24—continued.

TABLE B.—Painters, Painters' Assistants, and Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Baldrock, W.	Painter	Influenza.....	10-6-19	24-6-19	12
Fleet, H.	"	Bronchitis	5-6-19	10-6-19	4
Smith, A.	"	Influenza	4-6-19	10-6-19	5
Burridge, A.	"	"	10-6-19	17-6-19	6
Hentsch, A.	"	Cephalalgia	5-6-19	11-6-19	5
Henry, J.	Painter's labourer	Nervous excitability.....	28-5-19	24-6-19	25
Latham, G.	Painter	Influenza	28-5-19	7-7-19	34
White, A.	"	Acute leryza	28-5-19	2-6-19	4
Ward, L.	"	Septic hand	23-5-19	2-6-19	8
Crockett, C.	"	Aching pains in body	24-5-19	10-6-19	14
Towas, H.	Painter's labourer	Rheumatic gout	23-5-19	4-6-19	10
Claypole, W.	"	Teeth extracted	23-5-19	29-5-19	5
Burke, T.	"	Appendicitis	19-5-19	2-6-19	12
Whitmore, T.	"	"	5-5-19	18-8-19	90
Waddell, F.	"	Erysipelas	20-5-19	26-5-19	5
Ayre, J.	"	Influenza	19-5-19	3-6-19	13
Oakman, H.	"	Left ear	3-5-19	19-5-19	13
Henry, J.	"	Heart trouble.....	28-4-19	26-5-19	24
Ward, L.	Painter	Gastritis	1-5-19	15-5-19	12
Tarran	"	Epididymitis	12-5-19	26-5-19	12
Cawley, L.	Painter's labourer	Gastritis	12-5-19	27-5-19	13
Cleary, J.	Painter	Abscess	9-5-19	19-5-19	8
Burridge, J.	"	Rheumatism	28-4-19	19-5-19	18
Green, R.	"	Influenza	28-4-19	19-5-19	18
McRae, J.	"	"	28-4-19	26-5-19	24
King, T.	"	Shingles	1-5-19	16-5-19	13
Crockford	Apprentice painter	Influenza	29-4-19	6-5-19	6
Price, W.	Painter	Hæmorrhoids	23-4-19	1-5-19	7
Stewart, J.	Painter's labourer	"	5-4-19	6-5-19	26
Smith, P.	"	Debility following influenza	14-4-19	22-4-19	7
Pratt, L.	Painter	Influenza	14-4-19	22-4-19	7
Smith, D.	"	Articular rheumatism ..	1-4-19	9 9-19	138*
Crawley, A.	Painter's labourer	Severe cold	15-4-19	22-4-19	6
Whitmore, J.	"	Coryza.....	28-3-19	12-4-19	13
Chant, A.	"	Influenza	11-4-19	28-4-19	14
Dummett, S.	Painter	"	7-4-19	22-4-19	13
Worger, E.	Painter's labourer	Spanish influenza	5-4-19	22-4-19	14
Matherson, A.	"	"	12-4-19	28-4-19	13
McIntyre, L.	Painter	Influenza	8-4-19	22-4-19	12
Simpson, H.	Painter's labourer	"	5-4-19	10-4-19	4
Cleary, J.	Painter	Abscess	7-4-19	14-4-19	6
Sheen, L.	"	Influenza	7-4-19	11-4-19	5†
Neville, T.	"	"	3-4-19	16-5-19	37
Tarran, J.	"	"	29-3-19	14-4-19	13
Newman, W.	"	Influenza.....	29-3-19	3-4-19	4
O'Connell, C.	"	"	29-3-19	7-4-19	7
Turner, W.	Painter's labourer	Lumbago	10-3-19	24-3-19	12
White, A.	Painter	Colitis	31-3-19	8-4-19	7
Swanson, R.	"	Influenza	29-3-19	7-4-19	7
Price, W.	"	"	26-3-19	9-4-19	12
Ayre, A.	"	Gastro-enteritis	27-3-19	1-4-19	4
Green, R.	"	Influenza	25-3-19	1-4-19	6
Handel, A.	"	"	26-3-19	3-4-19	7
Goldsmith, E.	"	"	22-3-19	15-4-19	20
Kiddle, B.	Painter's labourer	Coryza.....	26-3-19	15-4-19	17
Murray, G.	Painter	Severe cold	25-3-19	3-4-19	8
Kemsley, W.	"	Influenza	21-3-19	22-4-19	27

* Resigned.

† Deceased.

Exhibit No. 24—continued.

TABLE B.—Painters, Painters' Assistants, and Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Ayre, A.	Painter's labourer	Rheumatism	22-3-19	7-4-19	13
Flahey, J.	Painter	Bronchitis	22-3-19	2-4-19	9
Wishart, C.	"	Influenza	20-3-19	3-4-19	12
Crockett, C.	"	"	19-3-19	31-3-19	10
Mealey, P.	"	Catarrh	19-3-19	7-4-19	16
Carpenter, D.	"	Dysentery	11-3-19	18-3-19	6
Smith, D.	"	Rheumatism	18-2-19	17-3-19	23
Parry, P.	"	Gastro-enteritis	3-2-19	10-2-19	6
Fenner, F.	Painter's labourer	Gout	6-1-19	17-1-19	10
Towns, H.	"	Bronchitis	28-1-19	11-2-19	12
Lyons, R.	Painter	Acute sunburn	9-12-18	16-12-18	6
Hannaford	"	Neurasthenia	6-11-18	25-11-18	16
Ward, J.	Apprentice painter	"	28-10-18	7-4-19	138*
Baker, Albert	Painter	Influenza	23-10-18	30-5-19	188†
Carpenter	"	General debility	21-10-18	4-11-18	12
White, A.	"	Influenza	8-10-18	15-10-18	6
Jennings, T.	Apprentice painter	"	1-10-18	29-11-18	51
Gillard, H.	Painter	Influenza	27-9-18	8-10-18	9
Dummett, S.	"	"	24-9-18	1-10-18	6
Leslie, C.	"	"	24-9-18	30-9-18	5
Small, S.	"	"	23-9-18	1-10-18	7
Whitmore T.	Painter's labourer	Rheumatism	26-8-18	15-10-18	43
Jones, H.	Painter	Influenza	20-9-18	30-9-18	8
Carpenter, W.	"	"	21-9-18	8-10-18	14
Arnold, H.	"	"	12-9-18	17-9-18	4
Smith, D.	"	"	10-9-18	11-11-18	53
Murray, C.	"	"	9-9-18	19-9-18	9
Reavell, J.	"	"	5-9-18	24-9-18	16
Wheatley, J.	"	"	5-9-18	16-9-18	9
Parry, P.	"	Tonsilitis	30-8-18	3-9-18	3
Gillard, H.	"	Influenza	24-8-18	2-9-18	7
Turner, W.	Painter's labourer	"	26-7-18	13-8-18	15
Healey, R.	Painter	"	1-8-18	6-8-18	4
Bailey, E.	"	Colic	31-7-18	6-8-18	5
Badger, F.	"	Influenza	25-7-18	30-7-18	4
Smith, D.	"	Rheumatism	23-7-18	19-8-18	23
Cameron, H.	Painter	Influenza	24-7-18	29-7-18	4
Fletcher, E.	Apprentice painter	Painter's colic	20-7-18	6-8-18	14
Slater, W.	Painter's labourer	Influenza	19-7-18	31-7-18	10
Simm, C.	"	Kidney trouble	1-7-18	16-12-18	144
McIntyre	Painter	Influenza	15-7-18	20-7-18	5
Chapman, H.	Painter's assistant	Catarrh	5-7-18	15-7-18	8
Arnold, A.	Painter	Gout and catarrh	9-7-18	16-7-18	6
Case, A.	Painter's labourer	Rheumatism	8-7-18	22-7-18	12
Green, J.	Painter	Influenza	3-7-18	15-7-18	10
Sheen, L.	"	Bronchitis	1-7-18	8-7-18	6
Smith, L.	"	Rheumatism .....	.....	1-7-18	1
Injuries not considered sustained on duty.					
Stokes, C.	Painter's labourer	Fractured leg	25-2-20	18-5-20	71
Cawley, L.	"	Left thumb sprained	9-2-20	17-3-20	32
Tuite, B.	"	Incised wound on forearm	7-2-20	16-2-20	7
Cawley, L.	"	Injury to leg	18-12-19	22-12-19	3
Jennings, T.	Apprentice painter	Sprained shoulder	16-9-19	30-9-19	12
Neville, C.	Painter	Split thumb	16-6-19	19-6-19	3
Fletcher, E.	Apprentice painter	Broken collar bone	7-6-19	16-7-19	33

* Resigned. † Retired.

Exhibit No. 24—continued.

TABLE B.—Painters, Painters' Assistants and Apprentices.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Smith, A.	Painter	Influenza	30-6-21	.....	1
Love, W.	"	Bronchitis	30-6-21	.....	1
Cahill, C.	Painter's labourer	Varia of femoral vein	15-6-21	.....	14
King, T.	Painter	Acute febricula	24-6-21	.....	6
Smith, G.	"	Influenza	29-6-21	.....	2
Mitchell, J.	"	"	15-6-21	.....	14
Boddan, R.	"	Septic finger	21-6-21	28-6-21	6
Smith, W.	"	Persistent hiccough due to gastritis.	11-3-21	17-3-21	5
Thronsen, E.	"	Gastro enteritis	13-6-21	20-6-21	6
Leach, C.	"	Fibrositis	13-6-21	16-6-21	3
Mitchell, J.	"	Bronchitis	8-6-21	13-6-21	4
Wheatley, J.	"	Poisoned arm.....	9-6-21	20-6-21	9
Burridge, I.	"	Gout	6-5-21	20-6-21	15
McIntyre, J.	"	Bronchitis	25-5-21	26-5-21	1
Champion, G.	"	Lead colic	10-5-21	16-5-21	5
Cave, E.	"	Abscess	6-5-21	10-5-21	3
Murray, Hy.	"	Influenza	9-4-21	18-4-21	7
Davis, Oliver	Apprentice painter	"	19-4-21	21-4-21	2
Crockett, C.	Painter	Loss of appetite.....	4-4-21	23-5-21	42*
Boggs, J.	Painter's labourer	Colic and conjunctivitis	5-4-21	19-4-21	12
Kemsley, W.	Painter	Acute appendicitis	28-3-21	11-5-21	37
Tucker, A.	"	Enlarged prostate	11-3-21	23-5-21	62
Walker, J.	Painter's labourer	Neurasthenia.....	24-2-21	3-3-21	6
Fleet, H.	Painter	Gastritis	24-2-21	28-2-21	3
Mitchell, J.	"	Influenza	17-2-21	28-2-21	9
Callan, J.	"	Neurasthenia.....	11-2-21	4-4-21	44
Worger, W.	Painter's labourer	Boils	16-2-21	21-2-21	4
Stokes, C.	Painter	Colic	8-2-21	10-2-21	2
Shoults, R.	"	Tonsilitis.....	4-2-21	31-3-21	47
Dewhurst, R.	"	"	27-1-21	3-2-21	6
King, E.	"	Chill.....	24-1-21	31-1-21	6
McIntyre, J.	"	Shock following tooth extraction.	17-1-21	24-1-21	6
Hannaford, V.	"	Acute otitis media	5-1-21	2-2-21	26
Leach, C.	"	Fibrositis	11-1-21	17-1-21	5
Burridge, I.	"	Rheumatism	5-1-21	10-1-21	4
Crawley, L.	Painter's labourer	Gastritis	20-12-20	5-1-21	14
Wilkins, A.	Painter	Lumbago	13-12-20	17-12-20	4
McIntyre, J.	"	Enteritis	7-12-20	20-12-20	11
Jenkins, R.	Apprentice painter	Gonorrhœa.....	16-11-20	6-12-20	17
Taylor, H.	Painter's labourer	Gastro enteritis	29-11-20	6-12-20	6
Fletcher, E.	Apprentice painter	Sunburn	26-11-20	29-11-20	2
Macdonald, O.	Painter	After effects of gas poisoning.	23-11-20	13-12-20	18
Smith, W.	"	Colitis	17-11-20	22-11-20	4
Fleet, H.	"	Hepatitis.....	19-11-20	22-11-20	2
Crawley, A.	Painter's labourer	Synovitis	18-11-20	19-11-20	1
Callan, J.	Painter	Neurasthenia	12-11-20	16-12-20	29
Heggarty, J.	"	Influenza	28-10-20	4-11-20	6
Ryan, J.	Painter's labourer	Gastritis	12-10-20	18-10-20	5
Green, R.	Painter	"	7-10-20	27-10-20	17
Cawley, L.	Painter's labourer	"	27-9-20	2-11-20	31
McIntyre, J.	Painter	Neuritis	23-9-20	27-9-20	3
Black, J.	"	Insomnia	23-9-20	27-9-20	3
Field, T.	"	Synovitis right knee	18-9-20	5-10-20	14
Crawley, A.	Painter's labourer	Laryngitis	14-9-20	20-9-20	5
Burridge, I.	Painter	Rheumatism	10-9-20	11-10-20	26
Heggarty, J.	Painter	Influenza	6-9-20	13-9-20	6
Broadbridge, A.	Painter's labourer	Renal trouble.....	2-9-20	13-9-20	9

* Resigned.

Exhibit No. 24—continued.

TABLE C.—Painters, Painters' Assistants, and Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Whiteman, L.	Painter's labourer	Bronehitis	2-9-20	13-9-20	9
Towns, H.	"	Cystitis	2-9-20	13-9-20	9
Callan, J.	Painter	Pneumonia	26-8-20	20-9-20	21
Cawley, L.	Painter's labourer	Bronchitis	26-8-20	6-9-20	9
Towns, H.	"	Rheumatic gout	24-8-20	31-8-20	6
Anderson, B.	"	Influenza	11-8-20	19-8-20	7
Waterson, S.	Painter	Lumbago	6-8-20	12-8-20	5
Cawley, L.	Painter's labourer	Acute colitis	5-8-20	9-8-20	3
Murray, G.	"	Influenza	29-7-20	5-8-20	6
Kirton, Wm.	Painter	"	24-7-20	3-8-20	8
Goldsmith, E.	"	Bronehial catarrh	21-7-20	3-8-20	11
Shiell, G.	Painter's labourer	Gastritis	22-7-20	26-7-20	3
White, A.	Painter	Influenza	21-7-20	28-7-20	7
Oakman, H.	Painter's labourer	Lumbago	21-7-20	26-7-20	4
McIntyre, J.	Painter	Influenza	21-7-20	3-8-20	11
Reiss, A.	"	"	8-7-20	13-7-20	4
Hurle, H.	"	"	2-7-20	12-7-20	8
Hedger, W.	Painter's labourer	Tuberculosis	1-7-20	4-5-20	263
Fegan, R.	Painter	Influenza	6-7-20	19-7-20	11
Gunton, P.	"	"	7-7-20	12-7-20	4
Turner, J.	"	Enlarged prostate	3-7-20	5-10-20	79
Forbes, N.	Painter's labourer	Influenza and bronchitis ..	1-7-20	24-9-20	72*
Braine, W.	Painter	Rheumatism	1-7-20	2-7-20	1
Webster, C.	"	Influenza	1-7-20	12-7-20	9
Ephgrave, W.	"	Tonsilitis	1-7-20	6-7-20	4
Dewhurst, R.	"	Influenza	1-7-20	5-7-20	3
Bailey, E.	"	"	1-7-20	5-8-20	30
O'Connell, C.	"	Pneumonia	1-7-20	3-8-20	28

Injuries not Considered Sustained whilst on Duty.

Smith, P.	Painter	Sprained left ankle	28-6-21	.....	3
Reidy, J.	"	Injury to head and neck ...	13-6-21	20-6-21	6
Fleet, H.	"	Hernia	7-6-21	.....	21
Swanson, R.	"	Sprained right shoulder ...	25-4-21	9-5-21	12
Braine, W.	"	Sprained foot	2-3-21	5-3-21	3
Whiteman, L.	Painter's labourer	Injury to leg	21-2-21	28-2-21	6
Levey, W.	Painter	Fraetured patella	5-1-21	14-3-21	58
Cook, S.	"	Hernia	7-12-20	17-1-21	35
Conneff, E.	"	Fraeture base of skull	22-10-20	13-12-20	44
Smith, P.	"	Sprained left ankle	27-9-20	11-11-20	39
Parker, H.	"	Sprained ankle	9-9-20	20-9-20	9
Gorman, E.	"	Fraetured shoulder	3-8-20	30-8-20	23
Smith, W.	"	Poisoned hand	1-7-20	5-7-20	3

TABLE D.

Car Builders and Car Builders' Assistants, also Apprentices.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
White, J.	Car builder	Influenza	30-6-21	.....	1
McLeod, J.	Apprentice car builder...	Inflammation spirus cord...	20-6-21	28-6-21	7
Riley, J.	Car builder's assistant...	Cellutitis	18-5-21	13-6-21	22
Shaw, G.	Car builder	Cystitis	30-5-21	13-6-21	12
Toms, E.	Apprentice car builder	Influenza	24-5-21	28-5-21	4
Sharp, N.	"	Acute Febricula	17-5-21	26-5-21	8
Meale, P.	Car builder	Influenza	9-5-21	16-5-21	6
Ross, Joshua	Car builder's assistant...	Acute bronchitis	3-5-21	16-5-21	11
Hyde, D.	Apprentice car builder	Synovitis	27-4-21	30-4-21	3

* Deceased.

Exhibit No. 24—continued.

TABLE D.—Car-builders and Car-builders' Assistants, also Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resumed.	
Steele, Jas. ...	Car builder ...	Vertigo: ...	25-4-21	6-5-21	10
Foster, Fred. ...	" ...	Nasal polypal ...	18-4-21	16-5-21	24
Riley, J. ...	Car builder's assistant...	Acute gastritis ...	6-4-21	16-4-21	9
McMahon, J. ...	Car builder ...	Gastro influenza ...	11-4-21	15-4-21	4
Trass, A. ...	" ...	Tonsilitis ...	1-4-21	11-4-21	8
Mackie, W. ...	Car builder's assistant...	Gastritis ...	31-3-21	11-4-21	10
Turner, W. ...	Car builder ...	Heat apoplexy ...	31-3-21	11-4-21	9
Mulveney, J. ...	" ...	Influenza ...	15-3-21	29-3-21	12
Galogly, J. ...	Apprentice car builder	Bronchitis ...	14-3-21	21-3-21	6
Rogers, M. ...	Car builder ...	Diarrhoea ...	2-3-21	14-3-21	10
Sheerin, J. ...	" ...	Gastro enteritis ...	28-2-21	9-3-21	8
Drover, A. ...	" ...	Nervous debility ...	1-3-21	14-3-21	11
Squires, S. ...	" ...	Debility and cardiac di- sease.	7-3-21	21-3-21	12
McMinn, R. ...	Car builder's assistant...	Oral sepsis. ...	15-2-21	11-3-21	21
Hazlett, H. ...	Car builder ...	Choleoptitis ...	15-2-21	4-3-21	6
Riley, J. ...	Car builder's assistant...	.....	23-2-21	12-3-21	15
Matthews, H. ...	Apprentice car builder	Influenza ...	3-2-21	12-2-21	8
Jonhston, J. ...	Car builder's assistant...	Appendicitis ...	7-2-21	14-2-21	6
Main, A. ...	Apprentice car builder	Abscess ...	28-1-21	8-2-21	9
Moore, E. ...	Car builder ...	Renal colic ...	31-1-21	3-2-21	3
Rider, S. ...	" ...	.....	22-1-21	31-1-21	7
Ross, J. ...	Car builder's assistant...	Pleurisy ...	24-1-21	7-2-21	12
Harvey, W. ...	Car builder ...	Gastro enteritis ...	24-1-21	3-2-21	9
Searle, C. ...	Apprentice car builder...	.....	17-1-21	21-1-21	6
Alexander, H. ...	Car builder ...	Appendicitis ...	17-1-21	21-2-21	30
King, F. ...	Car builder's assistant...	Lumbago ...	13-1-21	18-1-21	4
Wiseman, D. ...	Car builder ...	Septic arms ...	6-1-21	17-1-21	9
Leonard, W. ...	" ...	Influenza ...	10-12-20	16-12-20	5
Funnell, F. ...	" ...	Tonsilitis ...	14-12-20	20-12-20	5
Lachlan, J. ...	" ...	Sciatica ...	4-12-20	14-12-20	8
Kitchin, S. ...	Apprentice car builder	Influenza ...	27-11-20	6-12-20	7
Morrison, G. ...	Car builder's assistant...	Enteritis ...	24-11-20	30-11-20	5
Hunt, G. ...	Apprentice car builder	Nervous Debility ...	4-12-20	5-1-21	27
McGauran, L. ...	" ...	Bronchitis and febricula ...	29-11-20	.....	236
Mackie, W. ...	Car builder's assistant...	Rheumatism ...	19-11-20	29-11-20	8
Nicholls, I. ...	Car builder ...	Influenza ...	11-11-20	18-11-20	6
Wilson, G. ...	" ...	Valvular disease of heart ...	4-11-20	10-1-21	57
Mackie, W. ...	Car builder's assistant...	Rheumatism ...	2-11-20	15-11-20	11
Riley, J. ...	" ...	Acute gastritis ...	4-11-20	9-11-20	4
Wilson, H. ...	Car builder ...	Rheumatism ...	2-11-20	22-11-20	17
Lamrock, J. ...	Car builder's assistant...	Facial erisipelas ...	11-10-20	1-11-20	18*
Darwin, F. ...	Car builder ...	.....	25-10-20	8-11-20	12
Sheerin, J. ...	" ...	Gastritis ...	11-10-20	18-10-20	6
Harris, W. ...	Car builder's assistant...	Nervous debility ...	11-10-20	2-11-20	19
Tillman, S. ...	Car builder ...	Rheumatism ...	7-10-20	18-10-20	9
Stafford, T. ...	" ...	Pleurisy ...	27-9-20	8-10-20	10
Osborn, W. ...	" ...	Gastritis ...	28-9-20	7-10-20	8*
Barrett, H. ...	" ...	Acute coryza ...	13-9-20	21-9-20	7
Annis, W. ...	" ...	Influenza ...	7-9-20	20-9-20	11
Wilkins, H. ...	" ...	Bronchial cold ...	1-9-20	7-9-20	5
Newell, B. ...	" ...	Appendicitis ...	6-9-20	13-9-20	6
Jackman, W. ...	" ...	Dyspepsia ...	23-8-20	8-11-20	67
Green, C. ...	" ...	Tonsilitis ...	19-8-20	31-8-20	10
Lyle, W. ...	" ...	Fibrositis ...	12-8-20	5-10-20	45
Negus, E. ...	" ...	Lumbago ...	10-8-20	27-9-20	41
Walsh, W. ...	" ...	Tonsilitis ...	13-8-20	27-8-20	12
Gaynor, J. ...	Car builder's assistant...	After effects of operation on right hand.	10-8-20	13-9-20	29

* Deceased.

Exhibit No. 24—continued.

TABLE D.—Car-builders and Car-builders' Assistants, also Apprentices—continued.

Name.	Occupation.	Nature of Illness.	Illness.		Days.
			Off.	Resum(d.	
Mulveney, J. ...	Apprentice car builder	Septic throat and prostration.	26-7-20	9-8-20	12
Thompson, W. ...	Car builder	Influenza	17-7-20	26-7-20	7
Kelty, H. ...	"	"	13-7-20	20-7-20	6
Webb, W. ...	"	"	13-7-20	23-8-20	35
Opie, E. ...	Car builder's assistant...	"	10-7-20	11-8-20	27
Heywood, R. ...	Car builder	Neuritis	9-7-20	26-7-20	14
Lewins, S. ...	"	Gastritis —... ..	5-7-20	12-7-20	6
Horsfall, W. ...	Apprentice car builder	Rheumatism	3-7-20	12-7-20	7
Cudmore, J. ...	Car builder	Influenza	1-7-20	5-7-20	3
Eaton, S. ...	"	Bronchial cold	1-7-20	5-7-20	3
Chick, E. ...	"	Conjunctivitis	1-7-20	6-7-20	5
Austin, L. ...	Apprentice car builder	Neurasthenia	1-7-20	3-8-20	28
Emery, J. ...	"	Pneumonia	1-7-20	16-8-20	39

Injuries not considered sustained whilst on duty.

Prendergast, M. ...	Car builder	Sprained wrist	13-6-21	20-6-21	6
Sheerin, J. ...	"	Slight concussion and cut on scalp.	31-3-21	11-4-21	9
Lane, Harold ...	"	Fractured joint of thumb...	21-2-21	28-2-21	6
Wonders, W. ...	"	Hernia	15-11-20	15-12-20	26
Seabrook, W. ...	"	Injury to leg	13-11-20	22-11-20	7
Masters, C. ...	"	Injury to groin	15-10-20	8-11-20	20
Sheerin, J. ...	"	Sprained muscle of back ...	13-9-20	20-9-20	6
Main, A. ...	Apprentice car builder	Injured wrist	24-8-20	30-8-20	5
Horsfall, W. ...	"	Sprained knee	21-8-20	13-9-20	19
McCann, W. ...	Car builder	Wound of forehead	14-8-20	23-8-20	7
Main, A. ...	Apprentice car builder	Fractured finger	1-7-20	3-8-20	28

Exhibit No. 25.

PARTICULARS of time worked during nine periods as under by Painters, Carpenters, and General Staff.

Period.	Total time under 12 days.		Total time over 12 days.		Staff employed.	Average time worked per man per fortnight.	
Painters.—	Days	Hours.	Days.	Hours.		Days.	Hours.
13 July, 1918.....	5	...	2	5	22	11	6-9
2 Nov. 1918.....	3	...	...	...	22	11	6-9
8 Mar., 1919.....	...	...	...	...	23	12	0-0
12 July, 1919.....	...	...	2	...	29	12	0-0
15 Nov., 1919.....	12	...	...	...	43	11	5-4
20 Mar., 1920.....	...	...	...	...	44	12	0-0
24 July, 1920.....	...	...	...	...	34	12	0-0
27 Nov., 1920.....	1	...	...	...	35	11	7-9
2 April, 1921.....	...	...	...	...	41	12	0-0
Total	21	...	4	5	33-6	11	7-4

Exhibit No. 25—continued.

PARTICULARS of time worked during nine periods—continued.

Period.	Total time under 12 days.		Total time over 12 days.		Staff employed.	Average time worked per fortnight.	
	Days.	Hours.	Days.	Hours.		Days.	Hours.
Carpenters—							
13 July, 1918.....	7	...	3	3	85	11	7-6
2 Nov., 1918.....	28	...	1	...	93	11	5-6
8 Mar., 1919.....	39	...	1	7	108	11	3-7
12 July, 1919.....	164	...	8	5	130	10	6-4
15 Nov., 1919.....	40	...	2	2	115	11	5-4
20 Mar., 1920.....	31	...	4	...	138	11	6-4
24 July, 1920.....	43	...	5	...	140	11	5-8
27 Nov., 1920.....	19	...	3	5	154	11	7-1
2 April, 1921.....	33	...	9	2	161	11	6-8
Total	344	...	39	...	124	11	6-3
Total Staff							
13 July, 1918.....	131	...	16	7	464	11	6-0
2 Nov., 1918.....	128	...	15	5	480	11	5-7
8 Mar., 1919.....	172	...	35	3	485	11	5-7
12 July, 1919.....	455	...	22	2	517	11	1-2
15 Nov., 1919.....	219	...	22	5	515	11	4-8
20 Mar., 1920.....	193	...	18	2	555	11	7-2
24 July, 1920.....	235	...	53	2	620	11	5-6
27 Nov., 1920.....	141	...	32	5	627	11	6-6
2 April, 1921.....	154	...	40	2	656	11	6-6
Total	1,828	...	257	1	546-5	11	6-1

INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS.

AVERAGE Number of Men employed from 1st July, 1918, to 30th June, 1921.

Painters and Brush Hands.....	34
Carpenters and Carpenters' Labourers	126
Total Staff	552

TOTAL Time lost through Sickness from 1st July, 1918 to 30th June, 1921 (excluding Sundays).

	Average men employed for 3 years.	Total days lost for 3 years.	Percentage of time lost, per man, for 3 years.
			Days.
Painters and brush hands	34	540	15-9
Carpenters and carpenters' labourers	126	1,828	14-5
Total staff	552	9,568	17-3

TOTAL Time off Duty through Injury not considered sustained whilst on duty, from 1st July, 1918, to 30th June, 1921 (excluding Sundays)..... Nil.

TOTAL Time Lost through causes other than Sickness, from 1st July, 1918, to 30th June, 1921 (excluding Sundays).

	Average men employed for 3 years.	Total days lost for 3 years.	Percentage of time lost, per man, for 3 years.
			Days.
Painters and brush hands	34	298	8-8
Carpenters and carpenters' labourers	126	1,202	9-5
Total staff	552	9,863	17-9

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS—continued.

TOTAL Time Lost through Sickness and other causes, from 1st July, 1918, to 30th June, 1921 (excluding Sundays).

	Average men employed for 3 years.	Total days lost for 3 years.	Percentage of time lost, per man, for 3 years.
			Days.
Painters and brush hands	34	838	24·7
Carpenters and carpenters' labourers	126	3,030	24·0
Total Staff	552	19,431	35·2

Men employed period ending 13th July, 1918.

Painters and brush hands.....	22
Carpenters and carpenters' labourers	85
Total staff	464

TOTAL Time Lost through Sickness, period ending 13th July, 1918 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	22	5	·227
Carpenters and carpenters' labourers	85	4	·047
Total staff	464	66	·142

TOTAL Time off Duty through Injury not considered sustained whilst on duty, period ending 13th July, 1918 (excluding Sundays)..... Nil.

TOTAL Time Lost through causes other than Sickness, period ending 13th July, 1918 (excluding Sundays).

	Average men employed	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	22	...	·0
Carpenters and carpenters' labourers	85	3	·035
Total staff	464	65	·140

TOTAL Time Lost through Sickness and other causes, period ending 13th July, 1918 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	22	5	·227
Carpenters and carpenters' labourers	85	7	·082
Total staff.....	464	131	·282

Men employed, period ending 2nd November, 1918.

Painters and brush hands	22
Carpenters and carpenters' labourers	93
Total staff.....	480

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS—continued.

TOTAL Time Lost through Sickness, period ending 2nd November, 1918 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	22	2	·091
Carpenters and carpenters' labourers	93	20	·215
Total staff.....	480	87	·181

TOTAL Time off Duty through Injury not considered sustained whilst on Duty, period ending 2nd November, 1918 (excluding Sundays)..... Nil.

TOTAL Time Lost through causes other than Sickness, period ending 2nd November, 1918 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands	22	1	·045
Carpenters and carpenters' labourers	93	8	·086
Total staff.....	480	41	·084

TOTAL Time lost through Sickness and other causes, period ending 2nd November, 1918 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	22	3	·136
Carpenters and carpenters' labourers	93	28	·301
Total staff.....	480	128	·265

Average number of Men employed, period ending 8th March, 1919.

Painters and brush hands.....	23
Carpenters and carpenters' labourers	108
Total staff.....	485

TOTAL Time Lost through Sickness, period ending 8th March, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	23	...	...
Carpenters and carpenters' labourers	108	27	·25
Total staff.....	485	89	·183

TOTAL Time off Duty through Injury not considered sustained whilst on duty, period ending 8th March, 1919 (excluding Sundays) Nil.

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS—continued.

TOTAL Time Lost through causes other than Sickness, period ending 8th March, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands	23	...	...
Carpenters and carpenters' labourers	108	12	·111
Total staff.....	485	83	·171

TOTAL Time Lost through Sickness and other causes, period ending 8th March, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	23	...	...
Carpenters and carpenters' labourers	108	39	·361
Total staff.....	485	172	·354

Men employed, period ending 12th July, 1919.

Painters and brush hands.....	29
Carpenters and carpenters' labourers	130
Total staff.....	517

TOTAL Time Lost through Sickness, period ending 12th July, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	29	40	1·379
Carpenters and carpenters' labourers	130	147	1·131
Total staff.....	517	384	·742

TOTAL Time off Duty through Injury not considered sustained whilst on duty, period ending 12th July, 1919 (excluding Sundays). Nil.

TOTAL Time Lost through causes other than Sickness, period ending 12th July, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	29	...	·0
Carpenters and carpenters' labourers	130	17	·131
Total staff.....	517	71	·137

TOTAL Time Lost through Sickness and other causes, period ending 12th July, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	29	40	1·379
Carpenters and carpenters' labourers	130	164	1·262
Total staff.....	517	455	·879

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS—continued.

Average number of Men employed, period ending 15th November, 1919.

Painters and brush hands.....	43
Carpenters and carpenters' labourers	115
Total staff	515

TOTAL Time Lost through Sickness, period ending 15th November, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	43	12	·279
Carpenters and carpenters' labourers	115	18	·156
Total staff.....	515	157	·304

TOTAL Time off Duty through Injury not considered sustained whilst on Duty, period ending 15th November, 1919 (excluding Sundays)..... Nil.

TOTAL Time Lost through causes other than Sickness, period ending 15th November, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	43	...	...
Carpenters and carpenters' labourers	115	22	·191
Total staff.....	515	62	·120

TOTAL Time Lost through Sickness and other causes, period ending 15th November, 1919 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	43	12	·279
Carpenters and carpenters' labourers...	115	40	·347
Total staff.....	515	219	·425

Men employed, period ending 20th March, 1920.

Painters and brush hands.....	44
Carpenters and carpenters' labourers	138
Total staff.....	555

TOTAL Time Lost through Sickness, period ending 20th March, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	44	3	·068
Carpenters and carpenters' labourers	138	22	·159
Total staff.....	555	109	·196

TOTAL Time off Duty through Injury not considered sustained whilst on Duty, period ending 20th March, 1920 (excluding Sundays)..... Nil.

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECT OF WHITE LEAD ON PAINTERS—continued.

TOTAL Time Lost through causes other than Sickness, period ending 20th March, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	44	12	·272
Carpenters and carpenters' labourers	138	9	·065
Total staff.....	555	84	·151

TOTAL Time Lost through Sickness and other causes, period ending 20th March, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	44	15	·34
Carpenters and carpenters' labourers	138	31	·224
Total staff.....	555	193	·347

Men employed, period ending 24th July, 1920.

Painters and brush hands.....	34
Carpenters and carpenters' labourers	140
Total staff.....	620

TOTAL Time Lost through Sickness, period ending 24th July, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	34	...	·0
Carpenters and carpenters' labourers	140	18	·128
Total staff	620	150	·242

TOTAL Time off Duty through Injury not considered sustained whilst on duty, period ending 24th July, 1920 (excluding Sundays) Nil.

TOTAL Time Lost through causes other than Sickness, period ending 24th July, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	34	...	·0
Carpenters and carpenters' labourers	140	25	·179
Total staff.....	620	85	·137

TOTAL Time Lost through Sickness and other causes, period ending 24th July, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	34	...	·0
Carpenters and carpenters' labourers	140	43	·307
Total staff.....	620	235	·379

Exhibit No. 25—continued.

INQUIRY OF BOARD OF TRADE ON THE EFFECT OF WHITE LEAD ON PAINTERS—continued.

Men Employed, period ending 27th November, 1920.

Painters and brush hands.....	35
Carpenters and carpenters' labourers	154
Total staff.....	627

TOTAL Time Lost through Sickness, period ending 27th November, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	35	1	·028
Carpenters and carpenters' labourers	154	12	·078
Total staff.....	627	85	·135

TOTAL Time off Duty through Injury not considered sustained whilst on Duty, period ending 27th November, 1920 (excluding Sundays) Nil.

TOTAL Time Lost through causes other than Sickness, period ending 27th November, 1920 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	35	...	·0
Carpenters and carpenters' labourers	154	7	·045
Total staff.....	627	56	·089

TOTAL Time Lost through Sickness and other causes, period ending 27th November, 1920 (excluding Sundays).

	Average men employed	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	35	1	·028
Carpenters and carpenters' labourers.....	154	19	·123
Total staff.....	627	141	·224

Men employed, period ending 2nd April, 1921.

Painters and brush hands.....	41
Carpenters and carpenters' labourers	161
Total staff	656

TOTAL Time Lost through Sickness, period ending 2nd April, 1921 (excluding Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	41	...	·0
Carpenters and carpenters' labourers	161	8	·049
Total staff.....	656	17	·025

Exhibit No. 25—*continued.*INQUIRY OF BOARD OF TRADE ON THE EFFECTS OF WHITE LEAD ON PAINTERS—*continued.*

TOTAL Time off Duty through Injury not considered sustained whilst on Duty, period ending
2nd April, 1921 (excluding Sundays) Nil.

TOTAL Time Lost through causes other than Sickness, period ending 2nd April, 1921 (excluding
Sundays).

	Average men employed.	Total days lost.	Percentage of time lost per man.
Painters and brush hands.....	41	12	·292
Carpenters and carpenters' labourers	161	25	·155
Total staff.....	656	137	·209

TOTAL Time Lost through Sickness and other causes, period ending 2nd April, 1921 (excluding
Sundays).

	Average men employed.	Total days lost.	Percentage of time lost. per man.
Painters and brush hands.....	41	12	·292
Carpenters and carpenters' labourers	161	33	·204
Total staff	656	154	·234

LIST of Painters off sick, 30th June, 1918, to 30th June, 1921.

Sick over 14 days.

Names.	Sickness.	Dates.		Totals.
		From.	To.	
Swan, Robert	Ear trouble	14 June, 1918	1 July, 1918	Days. 15
Weir, George	Influenza	28 Apr., 1919	19 May, 1919	19
Kennedy, Roy.....	"	2 June, 1919	17 June, 1919	16
Page, William	"	17 June, 1919	9 July, 1919	20
Hayward, Fred.	"	2 July, 1919	21 July, 1919	17
McDougall, Arch.....	"	4 July, 1919	5 Aug., 1919	28
Swan, Robert	"	2 July, 1919	28 July, 1919	23
McDougall, Arch.....	Lead poisoning	18 Aug., 1919	24 Sept., 1919	26
Wardrope, Geo.	Lumbago	7 May, 1920	5 July, 1920	46
Fishburn, Arthur	Bronchitis.....	14 June, 1920	8 Sept., 1920	75
Hibble, William	"	31 July, 1920	5 Aug., 1920	5
Bourke, Geo.	Gastritis and cellulitis	12 Mar., 1921	13 June, 1921	80
			Total ...	389

Exhibit No. 25—continued.

Sickness under 14 days.

Name.	Days.	Name.	Days.	Name.	Days.
McDonald, W.	11	Bissell, H.	1	Newton, A.	1
Lewis, W.	1	Bowden, H.	1	Wardrope, G.	2
Hennessy, J.	3	Randall, W.	11	Pike, A.	1
Lennon, S.	6	Newton, O.	4	Matthewson, A.	2
Allen, F.	1	Haywood, F.	4	Wardrope, G.	6
Durton, O.	1	Hibble, W.	7	Newton, R.	1
McDougall, A.	1	Weir, Geo.	3	Ward, W.	2
Laidlaw, J.	1	McDonald, A.	1	Walker, W.	1
Breeze, W.	4	McDougall, A.	2	Wardrope, H.	6
Swan, Robt.	8	Ross, E.	6	Fishbourne, A.	6
Breeze, W.	6	Smith, J.	1	Smith, J.	2
Haywood, F.	1	McDonald, W.	1	Lenon, S.	7
Rendall, H.	3	Gibson, J.	2		
Rendall, H.	4	Knudson, N.	2	Total	151
Lewis, W.	1	Haywood, F.	6		
Pike, A.	3	McDougall, A.	7		

Summary.

	days.
Sick over 14 days	389
Sick under 14 days	151
Total	540

LIST of Carpenters off sick.

Over 14 days.

Names.	Sickness.	Dates.		Total days.
		From.	To.	
Kagland, S.	Hernia	16 July, 1918	7 Aug., 1918	19
Howarth, Jas. T.	Neuritis	24 Aug., 1918	22 Oct., 1918	51
Walker, James	Gastric neuritis	25 Sept., 1918	4 Nov., 1918	35
Stanner, John	Paralysis of speech	6 Jan., 1919	26 May, 1919	96
Hogan, John	Mumps	24 Feb., 1919	11 Mar., 1919	13
Chapham, Alfred	Congested liver	7 Apl., 1919	30 Apl., 1919	17
Robinson, Thomas	Influenza	4 Apl., 1919	5 May, 1919	26
Ward, William	Arthritis of knee	7 Apl., 1919	2 June, 1919	54
Smith, William	Influenza	28 Apl., 1919	19 May, 1919	18
Chapman, Alfred	"	3 May, 1919	9 July, 1919	57
Packman, Ed.	Pleurisy	27 June, 1919	24 July, 1919	25
Hoowarth, Jos.	Influenza	27 June, 1919	16 July, 1919	17
Smithard, Albert	Pneumonic influenza	27 June, 1919	28 July, 1919	37
Greig, William	Influenza	14 Aug., 1919	2 Sept., 1919	16
Hall, Matthew	Injured leg	11 Aug., 1919	30 Sept., 1919	43
Earr, Louis	Hemiplegia	14 Oct., 1919	12 Jan., 1920	51
Spilstead, John	Appendicitis	24 Nov., 1919	12 Jan., 1920	42
Ransome, Francis	Melancholia	5 Feb., 1920	31 Mar., 1920	47
White, Geo.	Septic throat	18 June, 1920	12 July, 1920	20
Jones, Walter	Gastritis	28 June, 1920	26 July, 1920	24
Thornton, John	Hæmatoria	25 Aug., 1920	15 Nov., 1920	70
Phillips, Sidney	Rheumatism	13 Sept., 1920	23 Nov., 1920	61
Greig, William	Finger	13 Oct., 1920	24 Nov., 1920	36
Pressley, A. J.	Sick	2 Nov., 1920	15 Nov., 1920	11
McGuire, John	Brain affection	29 Nov., 1920	6 Jan., 1921	33
Singleton, Alfred	Inflamed eye	11 Jan., 1921	1 Apr., 1921	68
			Total	987

Exhibit No. 25—continued.

Under 14 days.

Name.	Days.	Name.	Days.	Name.	Days.
Soiland, S.	1	Singleton, A.	3	Rutter, C.	4
Anlizark, P.	2	Radcliffe, T.	2	Walker, L.	5
Frazer, C.	10	Keef, J.	4	Foggerty, E.	2
Frazer, C.	8	Lucas, J.	1	Martin, R.	6
Anlizark, P.	6	Lanham, C.	2	Smithard, A.	1
McBey, W.	8	Hanlin, W.	3	Hall, M.	1
Robinson, A.	1	Lucas, J.	5	Howarth, J.	1
Barnard, F.	5	Harford, S.	3	Hogan, J.	2
Rutter, Chas.	3	Harford, S.	1	Larkin, A.	3
Spilstead, J.	1	Phillips, P.	2	Spilstead, A.	1
Bouquet, L.	4	Chapham, A.	8	Ware, F.	2
Lambert, J.	1	Smith, W.	9	Lucas, J.	2
Greig, W.	4	Highland, F.	8	Oliver, A.	3
Greig, W.	3	Harrison, S.	2	Lanham, C.	6
Burton, A.	8	Stanner, J.	6		
				Total	163

Summary.

Over 14 days	days.
Under 14 days.....	987
Carpenters' labourers	163
	678

Grand total 1,828

EXHIBIT No. 26.

RANDWICK WORKSHOPS.

TOTAL time off duty, including absences of 3 days and under one month, and 1 month and over, through sickness and injury, for 3 years ending 30th June, 1921 (excluding Sundays and holidays).

Grade.	Average number employed for 3 years ending 30th Jan., 1921.	Sickness.				Injury on Duty.				Injury off Duty.		Grand Total.	
		Over 3 days and under 1 month.		1 month and over.		Over 3 days and under 1 month.		1 month and over.		Over 3 days and under 1 month.			
		Days off.	Average days per man.	Days off	Average days per man.	Days off.	Average days per man.	Days off.	Average days per man.	Days off.	Average days per man.	Days off.	Average days.
Painters ... Assistants ... Apprentices..	43	613	14·26	407	9·46	51	1·19	...	...	4	·09	1,075	25·0
Carbuilders ... Assistants ... Apprentices	60	524	8·73	354	5·9	116	1·93	102	1·7	6	·1	1,102	18·4
Elec. Mechanics Labourers ... Apprentices	65	629	9·52	848	13·05	160	2·4	...	...	7	·1	1,644	25·2
Pitmen ... Assistants ...	42	614	14·62	59	1·40	183	4·36	102	2·43	3	·07	961	22·9
Total Staff ...	909	8,193	9·01	5,775	6·35	2,612	2·87	1,433	1·57	67	·07	18,080	19·80

Exhibit No. 26—continued.

TOTAL time off duty during February, May, and August, 1920.

Grade.	Average No. employed for 3 years ending 30-6-21.	Sickness.		Injury on Duty.		Injury off Duty.		Total.	
		Days off.	Average days per man.	Days off.	Average days per man.	Days off.	Average days per man.	Days off.	Average days.
Painters, &c. ...	43	26	·60	...	.....	...	.....	26	·6
Carbuilders, &c. ...	60	40	·67	32	·53	...	.....	72	1·2
Elec. Mechanics, &c. ...	65	148	2·27	17	·26	4	·06	169	2·6
Pitmen, &c. ...	42	36	·86	27	·64	...	.....	63	1·5
Total Staff ...	909	844	·93	362	·39	8	·008	1,214	1·33

ELECTRICAL Mechanics employed at Randwick Workshops who were absent from duty owing to Sickness, or Injury received whilst on duty, or off duty, during the period from 1-7-18 to 30-6-21.

Name.	Total days absent during above period.	Name.	Total days absent during above period.
Clarke, E. H.	42	Dempsey.....	31
Driver, F.	200*	Furlong, L.....	25
Hepper, H.	28	Gray, C. F.	34
Hughes, A.	157	Sinclair, A.	25
Kenton, N.	206†	Stanley, B. J.	62*
Croker, T.	38		—
			848

* Neurasthenia—returned soldier. † Eurumcolosis.

EXHIBIT No. 27.

Sample of wood painted twelve months ago with zinc oxide paint.

EXHIBIT No. 28.

Sample of wood painted three years and nine months ago with white-lead.

EXHIBIT No. 29.

State Government Insurance Office,

Parbury House, Eagle-street, Brisbane, 18th July, 1921.

Dear Sir,

Further to my letter of 7th instant to you, I am in receipt of a further letter dated 14th idem from Mr. Goodwyn.

At his request I have pleasure in advising you that the period covered by the claims reported is for the two years ended 30th June, 1920. We have no statistics regarding white-lead poisoning prior to 1st July, 1918, and the figures for the year ended 30th June, 1921, are not yet available.

The President,

Board of Trade,

Sydney, N.S.W.

Yours, &c.,

JOHN A. WATSON,

Insurance Commissioner.

EXHIBIT No. 30.

Three photographs of cottage at Roseville.

(Not reproduced.)

EXHIBIT No. 31.

Memorandum and Articles of Association of British-Australian Lead Manufacturers Proprietary, Limited, dated 27th day of May, 1918, and Certificate of Incorporation, dated 28th day of May, 1918.

The Documents, of which this Exhibit is a copy, being available for public inspection, are not included in the Report.

(This document was not marked as an Exhibit in the inquiry but was forwarded to the Board as evidence, and by the Board communicated to the parties.)

Hotel Australia, Sydney, 10 August, 1921.

To the Deputy-President and members of the Board of Trade, Sydney.

Dear Sirs,

I regret that after having travelled from Tasmania to this city with the object of assisting the Commission on the manufacture of a non-poisonous white-lead, I find that on arrival here I was too late to give my evidence.

I now respectfully wish to tender to you the following facts, supported by documentary evidence:—

In the past six years I have been endeavouring to produce a non-poisonous white-lead, during which period I have expended over £35,000, both in England and Australia in perfecting my process.

The various exhibits herewith tendered will show the stages as from time to time, the progress which I am pleased to say I have made, and I am able to state that I have perfected and produced a non-poisonous white-lead, in accordance with the conditions as laid down by the "Committee to investigate the danger attendant on the use of paints containing lead to the health of persons engaged in painting buildings, and to consider and report what should be done to obviate or reduce the danger," under warrant of appointment by the British Parliament, dated 20th January, 1911.

If you will refer to the following Exhibit marked "A" (No. 699-16) and the product produced by the method and explained by the attached analysis (*Exhibit "B"*), it compares more than favourably as laid down by the American Department of Commerce (*vide*, Exhibit marked "C," page 4).

Exhibit marked "D" is a complete specification of my patent, by which I have produced the non-poisonous white-lead.

Exhibit marked "E" will go to prove, by the analysis of Mr. A. E. O'Brien of Tasmania, of the sample of my product, which speaks for itself, and also produce a copy of Mr. G. M. Dancy's report, under exhibit marked "F," further showing that I have produced a high-class product.

And it affords me pleasure to hand you, under Exhibit marked "G," a copy of a communication that I received from Mr. E. L. Collis, M.B., Medical Inspector of Factories, U.K.

Further, for your assistance, I enclose a description of the non-poisonous white-lead, by myself and Mr. Evershed.

You will perceive that white-lead is produced direct from the sulphide ore as mined, thus saving the conversion to pig-lead. This process should prove of great commercial value to the mining industries of Australia.

The markets of the East lie at our doors, and with the cheap electricity at the disposal of my company, we are in a position to compete on very favourable lines with our principal competitors in America in these markets, utilising materials from the Broken Hill mines.

When passing through Melbourne from Tasmania to this city, I took the opportunity of bringing a sample of my products, which I left with the well-known analyst, Mr. A. Hartlett, of 104 Queen-street, Melbourne, for the purpose of determining the soluble lead contents of my product, and herewith now tender Mr. Hartlett's telegram, marked "H," of the analysis of sample left by me, which you will perceive that the product that I am producing gives a result of 2.4 per cent. of soluble lead, as against Mr. A. E. O'Brien, 2.62 per cent.

Any further information that lies in my power to place before you, gentlemen of the Commission, I shall be pleased to place before you, should you require me to do so.

I am, dear sir,

Your obedient servant,

JAMES GITSHAM.

Exhibit "A."

COMPLETE SPECIFICATION for Improved Process for the Manufacture of the Sulphate, Sulphite, and Oxide Directly from the Sulphide of Lead.

[Public document, printed and published for the Department of Patents, Commonwealth of Australia, by Albert J. Mullett, Government Printer for the State of Victoria.] C. 7473, 15/6/16, 125. Price 1s. 5d., post.

Exhibit "B."

Laboratory, 96 Victoria-street, Westminster, S.W.

20 August, 1915.

WM. H. SIMMONS, B.Sc. (London), F.C.S.,
Analytical and Consulting Chemist.

Messrs. The G.M.C. Syndicate Ltd.,

Dear Sirs,—

8 and 9 Martins Lane, E.Ci

I have analysed the sample of white-lead which you have submitted to me, with the following results:—

Moisture	1.1 per cent.
Lead-sulphate and sulphite, as $PbSO_4$	82.0 "
Lead-oxide	13.7 "
Iron and alumina	0.4 "
Insoluble matter (silicate).....	1.4 "
Carbon-dioxide	tracc.

"Soluble" lead 16.0 per cent.

determined in accordance with the recommendation of the Departmental Committee.

There are two points to be considered in connection with this pigment—(1) its poisonous properties, and (2) its colouring value.

1. The Departmental Committee require that not more than 5 per cent. shall be soluble in 0.25 per cent. hydrochloric acid, whereas 16 per cent. of this sample dissolves, so that, though much more insoluble than an ordinary white-lead, it does not satisfy the requirements for a non-poisonous pigment. The amount of soluble lead could be distinctly reduced by more complete oxidation, as is shown by the presence of a small proportion of sulphite, which would be converted by oxidation into insoluble lead-sulphate.

2. As regards tinctorial power, the sample itself is not quite white, attributable to two causes, viz., the presence of (1) about 1.5 per cent. of insoluble siliceous matter, and (2) 0.4 per cent. of iron. The former is probably derived from the mineral used, and the latter is, I understand, probably accidental, from the corrugated-iron roof. If these impurities can be eliminated, a perfectly white material should be obtained. Failing their complete removal, the colour of the pigment could be improved by the addition of a very small amount of ultramarine, which would be in no way injurious or objectionable.

Yours faithfully,

W. H. SIMMONS.

Exhibit "C."

CIRCULAR of the Bureau of Standards, No. 85, Recommended Specification for Basic Sulphate White Lead, Dry and Paste.—Government Printing Office, Washington, U.S.A.

Exhibit "D."

COMPLETE SPECIFICATION OF JAMES GITSHAM AND HAROLD ROBERT EVERSHED FOR "PROCESS OF AND APPARATUS FOR THE MANUFACTURE OF SULPHATE OF LEAD."

This invention has for its object the manufacture of sulphate of lead from the sulphide, as it occurs in the ore, to fulfil the conditions of a pigment laid down by the British Departmental report on the "Use of paints containing lead in the painting of buildings," dated November, 1914.

In the specification of James Gitsham's Commonwealth Letters Patent No. 699/16 a process of this kind is described in which sulphate, sulphide and oxide of lead are obtained directly from the raw sulphide by introducing the same in a finely divided state into an electric furnace, wherein the fine sulphides are volatilised and afterwards rendered into sulphates by the action of oxygen. The product is then separated and recovered for use.

In the process above indicated some sulphite and oxide of lead is produced with the sulphate; this is to be avoided or minimised as much as possible owing to the fact that the oxide and sulphite are not only deleterious when present in any considerable proportions, but detract from the appearance of the sulphate when associated therewith. It has also been found that the draught of air through the furnace carries with it not only the fumed sulphides but a certain percentage of unfumed material that has come within the influence of the draught and has been prevented from reaching the arcs of the furnace.

Our present invention aims at the production of a purer sulphate of lead and the elimination of the said unfumed sulphide. According to the invention we take a sulphide of lead ore, not necessarily pure, and very finely subdivide the same before passing it in nicely regulated quantities in a suitable feeding appliance to the arcs of an electric furnace. The electrodes are arranged horizontally in the furnace in two or more pairs, and as the material falls thereon it is immediately turned into fume by the extremely high temperature emanating from the electrodes. In the side of the furnace some feet above the arcs is an air conduit, through which a supply from the atmosphere is constantly drawn and which, after passing over the furnace, flows through flues carrying with it the fumed material. The suspended hot and minute sulphide fume is converted into sulphate of lead by contact with the atmospheric oxygen, and is furthermore met in the flues by a series of fine water sprays, which continuously operate all along the flue and wash down the material, which is then conducted as a sulphate of lead to suitable settling vats. Associated with the water sprays we may also use steam jets with good effect, and the spraying is continued along the flues until the fume is brought down.

In the vats means are provided for warming and agitating the product, such as by coils delivering steam thereinto, and while the agitation is in progress free acid may be added to the vat in sufficient strength to convert remaining sulphites and oxides into sulphates. The agitation will have the effect of floating any raw sulphide that may have escaped the fuming process and this is skimmed off, dried, and afterwards retreated. The remainder will then be subjected to treatment with lime water in sufficient quantities to neutralise the acid, and the sulphates, after settling, will be decanted from the vats, dried, and packed for use as a lead pigment.

If the sulphide ore is not pure it should, after the ordinary crushing, be suitably concentrated to remove the gangue before fuming, and a pure sulphide, as nearly as economically possible, obtained before passing it to the arcs. We preferably use three arcs in our furnace with a three-phase alternating current transformed to a low voltage and high amperage controlled by metallic choking coils. The sulphide fume will be converted to sulphate largely by contact with the atmospheric oxygen and the acid manufactured in the flues, but a percentage of the sulphide will be converted only to sulphite

and oxide. The acid formed in the flues through the chemical combination of the sulphur with the water and steam will effect the conversion of much of the sulphides and also some of the sulphites and oxides into sulphates, but should an appreciable quantity of non-sulphates remain, say in excess of five (5) per cent., then the free acid should be added in the vats.

It will be possible to select an ore having a sulphur content sufficient to provide in the flues for an excess of acid to affect all or nearly all the sulphites and oxides and to render unnecessary the addition of free acid in the vats. It will also be possible to so select the materials that only enough sulphur will be involved to provide acid to combine with the unconverted sulphides, sulphites and oxides to obtain a product in the vats free of an excess of acid, thereby rendering unnecessary the lime treatment. Should, however, inconvenient quantities of sulphite and oxide be found in the vats the added acid will be employed to convert the same into sulphates, and the acid will afterwards be neutralised by the lime, the resulting precipitate of calcium sulphate remaining with the lead sulphate.

A convenient apparatus wherein our process can be carried into effect is shown on the accompanying drawing, in which—

Figure 1 is a diagrammatic plan of the furnace, flues and vats, and

Figure 2 is a sectional elevation of the furnace.

In the furnace, the electrodes 1, 2 and 3 are arranged in pairs about nine (9) inches above the floor and about five (5) feet above the arcs is an atmospheric air intake (4) of ample proportions, through which air is drawn by the fans (5). Opposite said intake is an outlet for the air which will convey the fume in the furnace to a bifurcated flue (6), down which the air and fume pass under the water sprays (7), the steam jets not being shown in the drawing. The draught in the flues will be assisted by the uptake or chimney (8).

As the material is washed down in the flues it will flow with the water into the launders (9), and from thence into the vats (10). Fitted to the vats is a steam pipe (11) that runs the length of the system and is connected up to each vat wherein is a perforated steam-pipe upon the floor thereof that delivers steam upwardly into the mixture to warm and agitate the same. The other pipe (12) is intended to supply a weak solution of lime-water to the vats, when required, the pipe leading from a suitable tank and is fitted with the usual cocks, not shown in the drawing.

The finely-divided material is fed through an opening in the furnace wall on to the arcs in regulated quantities, and is turned at once into fume which rises into the current of air passing through the top of the furnace, taking up oxygen therefrom on its way to the flues. In the flues more sulphates are formed and washed out into the vats. After agitation in the vats the material will yield up unfumed lead-sulphide by flotation, and this will be removed for retreatment. Then free acid is added, when necessary, to convert to sulphates the sulphites and oxides of lead, and any excess of acid is neutralised by the weak solution of lime-water, which precipitates as calcium-sulphate and can mingle with the sulphate of lead without serious detriment thereto.

We claim—

1. In the manufacture of lead-sulphate, the treatment of lead-sulphide ore in a very finely divided condition by feeding same on to the arcs of an electric furnace to fume the ore, withdrawing the fume in a draught of atmospheric air from the furnace into flues, subjecting the material therein to fine water sprays that wash it into vats mainly as lead-sulphate, and heating and agitating the mixture in the vats to recover unfumed sulphide, as described.

2. In the manufacture of lead-sulphate, the process according to claim 1 and wherein steam jets are used with the water jets to mingle with the fume in the flues, and free acid is added to the vats to turn unconverted sulphites and oxides of lead into sulphates, said acid condition being afterwards neutralised by a weak solution of lime-water before decanting the sulphates, as herein described.

3. In the manufacture of lead-sulphate, the treatment of lead-sulphide ore in a very finely divided condition by feeding same on to the arcs of an electric furnace to fume the ore and withdrawing the fume with atmospheric air into a flue, wherein it is subjected to water sprays to form a natural acid that assists to convert the material into sulphates, as herein specified.

Exhibit "E."

Pamphlet entitled "A Pure Non-poisonous Lead Pigment":—Printed by Examiner and Weekly Courier Print, Launceston.)

Exhibit "F."

The Manager,
Lead Sulphate, Ltd., Launceston, Tasmania.

11 Beaconsfield-road, St. Kilda,
15 February, 1921.

Dear Sir,—

It affords me great pleasure to give you a very satisfactory account of the sample of lead-sulphate you so kindly sent me at my request. I found it dry out clean brilliant white. Though much lighter when dry, I found it of excellent covering powers. Lead-sulphate not being so liable to darken in an impure atmosphere, the difficulties of high-class rural painting in the matter of permanence seem to be solved by using a high-class product such as yours. I shall be pleased to help in making it known to artists.

Yours faithfully,

GEO. M. DANCEY.

Exhibit "G."

Coleg Prifathrofaol
Deheudir Cymru A Mynwy.

University College of
South Wales and Monmouthshire.
Old Buildings, Newport-road, Cardiff,
24 January, 1921.

Dear Mr. Gitsham,

I must thank you for your letter of the 29th October, which reached me about Christmas, and also for so kindly sending me a sample of your new product.

I recall quite well meeting you at Wednesfield and I am glad to hear that you have eventually produced a material which comes within the definition recommended by the Departmental Committee as being non-poisonous.

I have not yet had an opportunity of testing the value of your sample as a paint. Of course, the test of the value must lie there. So much of the value of lead-sulphate preparations has in the past depended (at least in my opinion) upon the presence of certain oxides of lead which probably react chemically with linseed oil that I am wondering how far a lead-sulphate so nearly pure as your new product must be, will prove to be a good pigment.

I have not heard recently what steps are proposed to be taken with regard to legislation controlling the use of paints containing soluble lead compounds, but I anticipate before long action will be taken on the lines recommended by the committee of which I was a member.

I am, yours sincerely,
EDGAR L. COLLIS.

J. GITSHAM, Esq.,
Factory, Esplanade and Gleadow-street,
Launceston.

AUSTRALASIAN NON-POISONOUS WHITE-LEAD SYNDICATE.
Non-poisonous White-lead.

Launceston, 7 July, 1921.

OWING to the poisonous nature of the ordinary white-lead of commerce (carbonate of lead) and the serious injury to the health of both the manufacturer and the user, for many years chemists throughout the world have been endeavouring to produce a white-lead that could be classed as non-poisonous.

In the latter part of the eighties of last century Henny patented various processes for the production of sulphate of lead by the volatilisation of the metals on a bed of coke in a blast furnace. Many other processes have been patented for the production of sulphate of lead by a variation of the method described.

In 1915 patents were applied for by the F.M.C. Syndicate for the manufacture of sulphate by an electrical furnace, the two principal claims being that fluxes were not required and the only chemical used was atmospheric oxygen.

In the year 1914 the British Government appointed a commission to investigate the dangers attendant on the use of white-lead (carbonate of lead) in the painting and allied trades.

The commission recommended that the industry be given three years in which to find a substitute for carbonate of lead, and that the manufacture or importation of carbonate of lead be prohibited by legislation.

The committee laid down the following test for the determination of what should be classed as non-poisonous for material containing lead:—

"To a sample of the dry material is added 1,000 times its weight of water, this is acidified to $\frac{1}{2}$ per cent. with hydrochloric acid agitated for one hour, allowed to stand for one hour, then filtered. If less than 5 per cent. of lead has been dissolved from the original dry weight it can be classed as non-poisonous."

The sulphate of lead on the market of the world to-day is a basic sulphate of lead seldom exceeding 80 per cent. in purity, the remaining 20 per cent. consisting of sulphite and oxides. This compound, though less poisonous than carbonate of lead, contains from 10 to 20 per cent. of soluble lead; so far all attempts to produce a basic sulphate of lead on commercial lines of a degree of purity to stand the non-poisonous test have failed.

By the Gitsham and Evershed process we produce a snow-white pigment; a commercially pure 98 to 100 per cent. sulphate of lead free from sulphites and oxides and containing less than 2 per cent. soluble lead.

We claim that as far as we are aware we are the only persons in the world who have the knowledge and the method by which this is produced.

We are prepared to submit samples to any competent chemist for analysis to verify our claim.

GITSHAM AND EVERSHED.

Exhibit "H."

TELEGRAM.

JAMES GITSHAM,
Hotel Australia, Sydney.
Sample posted two point four per cent. soluble.

HARTLETT.

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